Town of North Topsail Beach

Board of Aldermen Regular Meeting Agenda

Wednesday, August 03, 2022, at 11:00 AM

Town Hall - 2008 Loggerhead Court, North Topsail Beach, NC 28460

(910) 328-1349 | www.northtopsailbeachnc.gov

Mayor - Joann M. McDermon
Alderman - Richard Grant
Alderman - Connie Pletl
Town Manager - Alice Derian

Mayor Pro Tem - Mike Benson
Alderman - Don Harte
Alderman - Bob Swantek
Town Clerk – Melinda Mier

I. CALL TO ORDER (Mayor McDermon)

II. INVOCATION (Alderman Swantek)

III. PLEDGE OF ALLEGIANCE (Mayor McDermon)

IV. APPROVAL OF AGENDA

Specific Action Requested: Mayor will request for a motion to adopt the agenda

V. MANAGER'S REPORT

VI. OPEN FORUM

Citizens have the opportunity to address the Board for no more than three minutes per comment on any issue upon which the Board of Alderman has control.

VII. PUBLIC PRESENTATIONS AND HEARINGS

A. Coastal Engineer Update (Mr. Fran Way of ATM Consulting)

VIII. CONSENT AGENDA

A. Approval of Minutes (June 1 and July 6, 2022)

B. Department Head Reports

1. Finance Department
2. Fire Department
3. Inspections Department
4. Planning Department
5. Police Department

C. Committee Reports

1. Planning Board & PPI Committee
2. Board of Adjustment
3. TISPC https://tispc.org/minutes/
4. ONWASA https://www.onwasa.com/AgendaCenter

Specific Action Requested: Mayor will request a motion to approve the Consent Agenda

D. MOTV Tax Refund

E. Budget Amendment 2022-23.1-2

F. Budget Amendment 2022-23.3

IX. CONTINUING BUSINESS

A. 328-336 Folkstone Road Property (Town Manager Derian)

Specific Action Requested: Mayor will request a motion to ratify the consensus received from the Board of Alderman on Agreement to Amend the Contract for the Folkstone Road Properties that changes the expiration date of the Due Diligence Period. The Due Diligence Period is hereby changed to extend through 5:00p.m. on August 3, 2022.

B. NC Coastal Federation Living Shoreline Cost-Share Contract and Sand Bar Oyster Company Proposal (Town Manager Derian)

Specific Action Requested: Mayor may request for a motion to approve the NC Coastal Federation Living Shoreline Cost-Share Contract and Sand Bar Oyster Company Proposal for a Living Shoreline Project to be installed at Richard Peters Park which confirms the cost share amount for the project (100% payment by the NC Coastal Federation from the NCGA Grant)

C. Purchase of a 2405 Spartan fire engine from Atlantic Coast Fire Trucks (Town Manager Derian)

Specific Action Requested: Mayor may request for a motion to approve the purchase of a 2405 Spartan fire engine from Atlantic Coast Fire Trucks in the amount of $695,974.00 that will be payable after delivery.

D. Parks and Recreation Update (Alderman Pletl)

X. NEW BUSINESS

A. Resolution 2022-0006 - Exempting Phase 4 Engineering Services from G.S. 143-64.31 (Town Manager Derian)

Specific Action Requested: Mayor may request for a motion to adopt the resolution.

B. Buffer zone for building near dunes, wetlands or sound. (Alderman Grant)

XI. OPEN FORUM

Citizens have the opportunity to address the Board for no more than three minutes per comment on any issue upon which the Board of Alderman has control.

XII. ATTORNEY'S REPORT

XIII. MAYOR'S REPORT

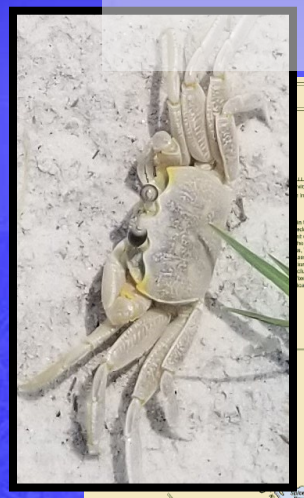
XIV. ALDERMAN'S REPORT

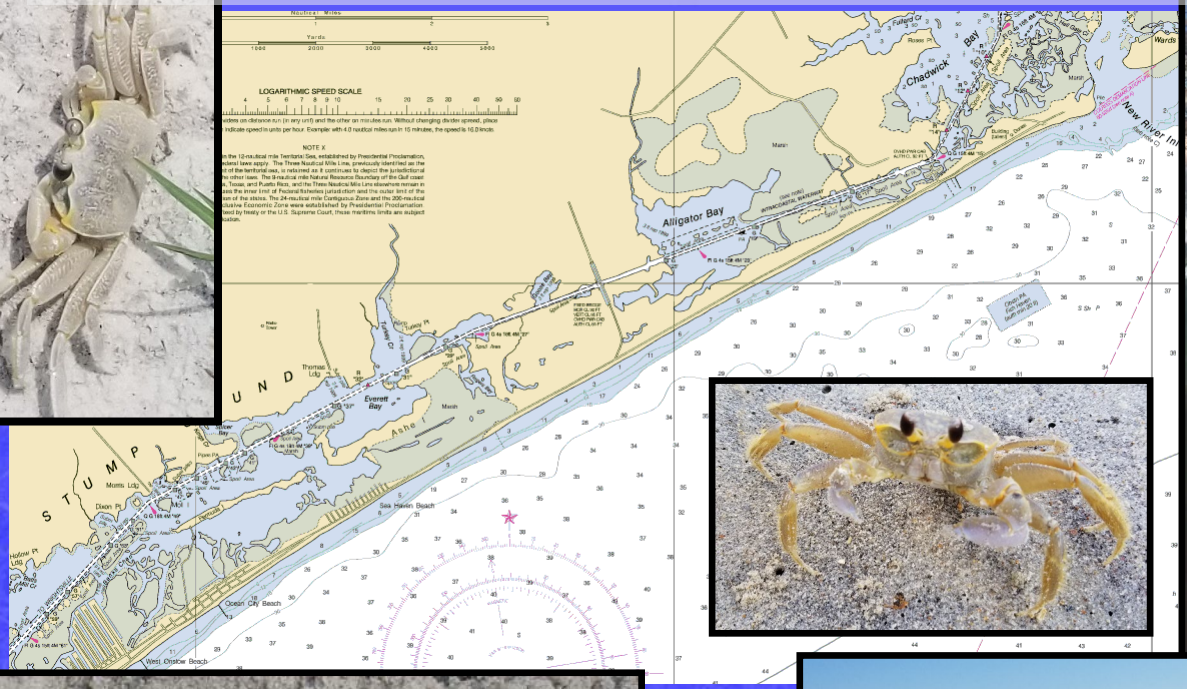
XV. CLOSED SESSION

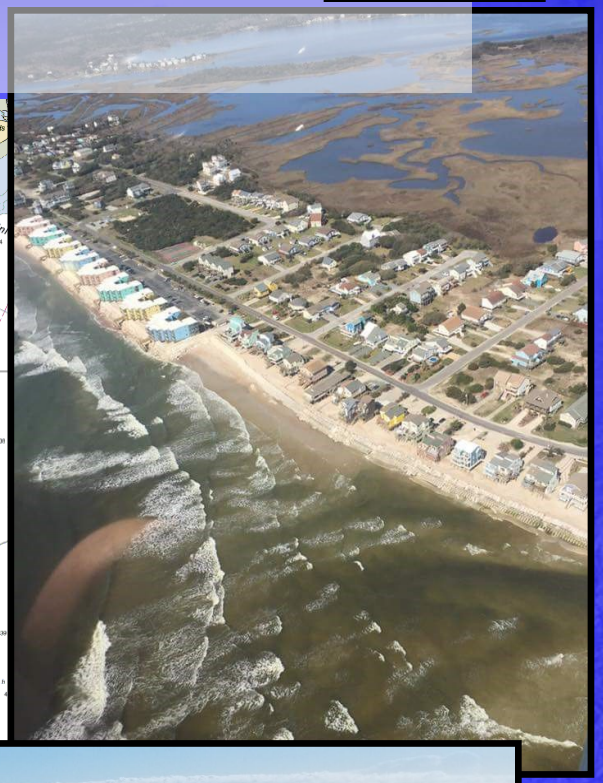
To consult with an attorney employed or retained by the public body in order to preserve the attorney-client privilege between the attorney and the public body, which privilege is hereby acknowledged. (G.S. 143- 381.11(a)(3)).

XVI. ADJOURNMENT

North Topsail Beach Coastal Update
August 2022







APPLIED TECHNOLOGY & MANAGEMENT

Marina, Coastal, Environmental & Water Resources Engineers

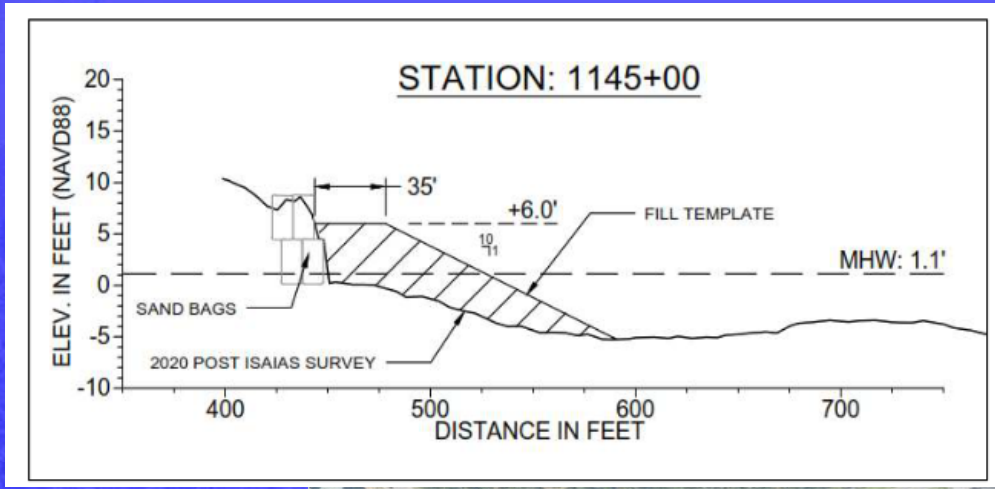
Upcoming
State Grant, Dorian and Florence FEMA Category G.

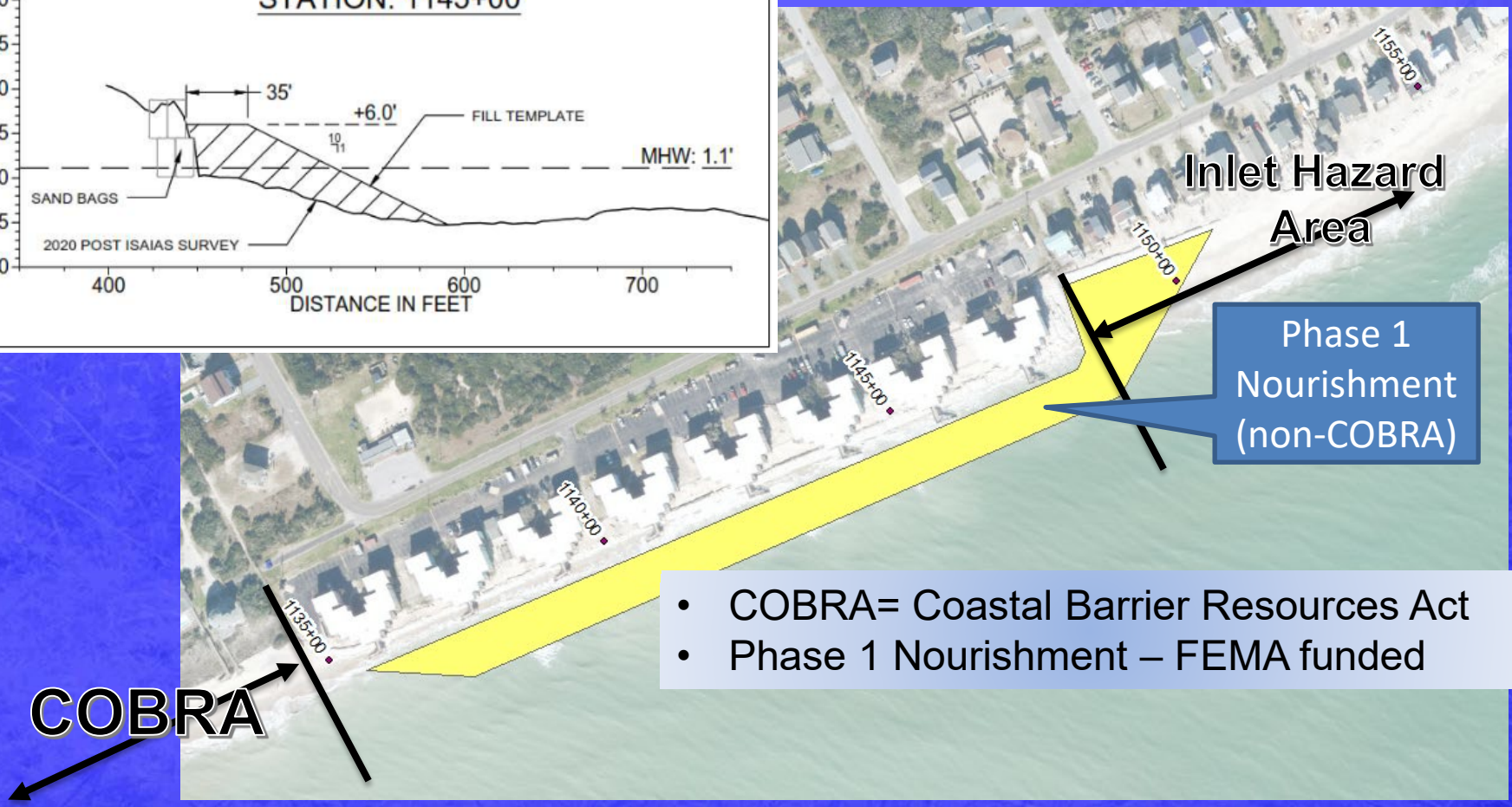
Phase 1 Cat. G:
Dorian: ~15,000 cy
Permitting: 45,000 cy

Phase 5 Cat. G:
Placed: ~120,00 cy
Florence: ~607,000 cy
Dorian: ~30,000 cy

Dune Revegetation – Phases 1, 2, 3, 4, 5

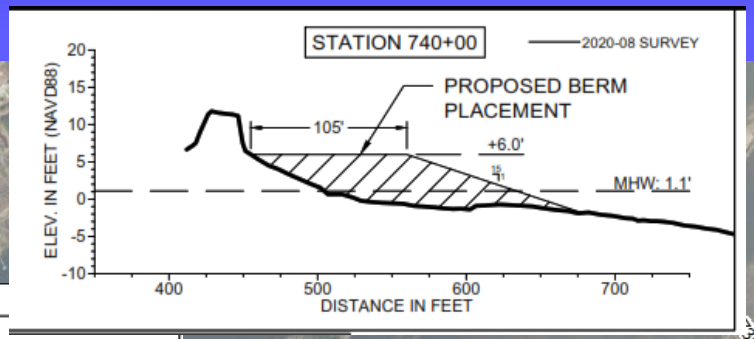
Nourishment Permitting of NON-COBRA Areas in Pl
Beach (not Dune) Nourishment

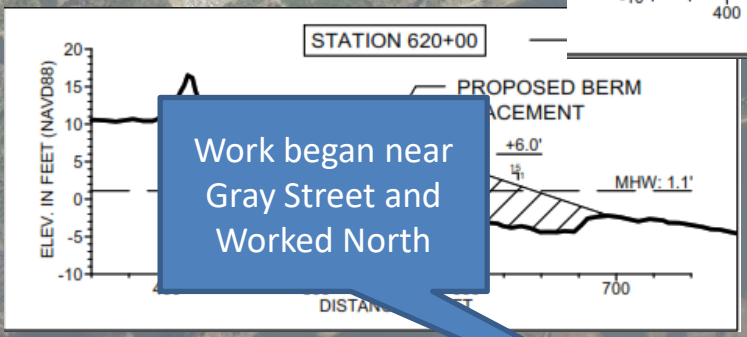




- COBRA= Coastal Barrier Resources Act
- Phase 1 Nourishment – FEMA funded

Planned Florence & Dorian Nourishment in Phase 5. Be (not Dune) Nourishment





Work began near Gray Street and Worked North

Stopped at 692+00

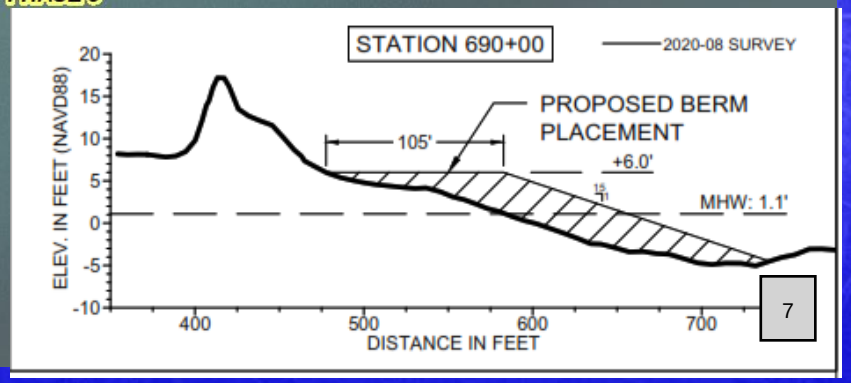
Project to Occur over Two Seasons and Two Separate Sub-Projects

~120,000 cy placed

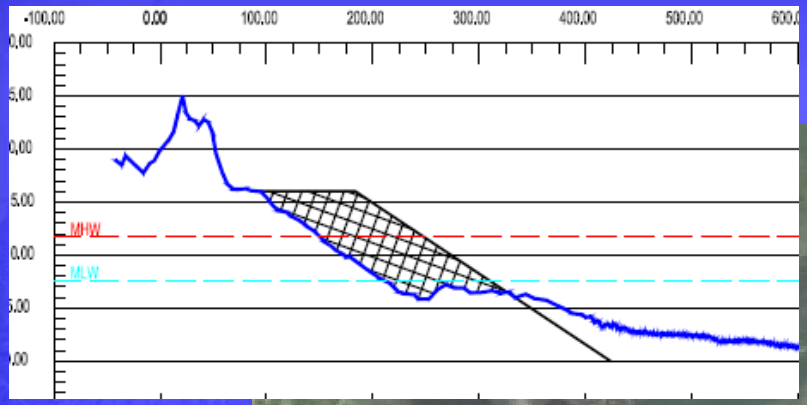
2nd Tranche Project Bidding

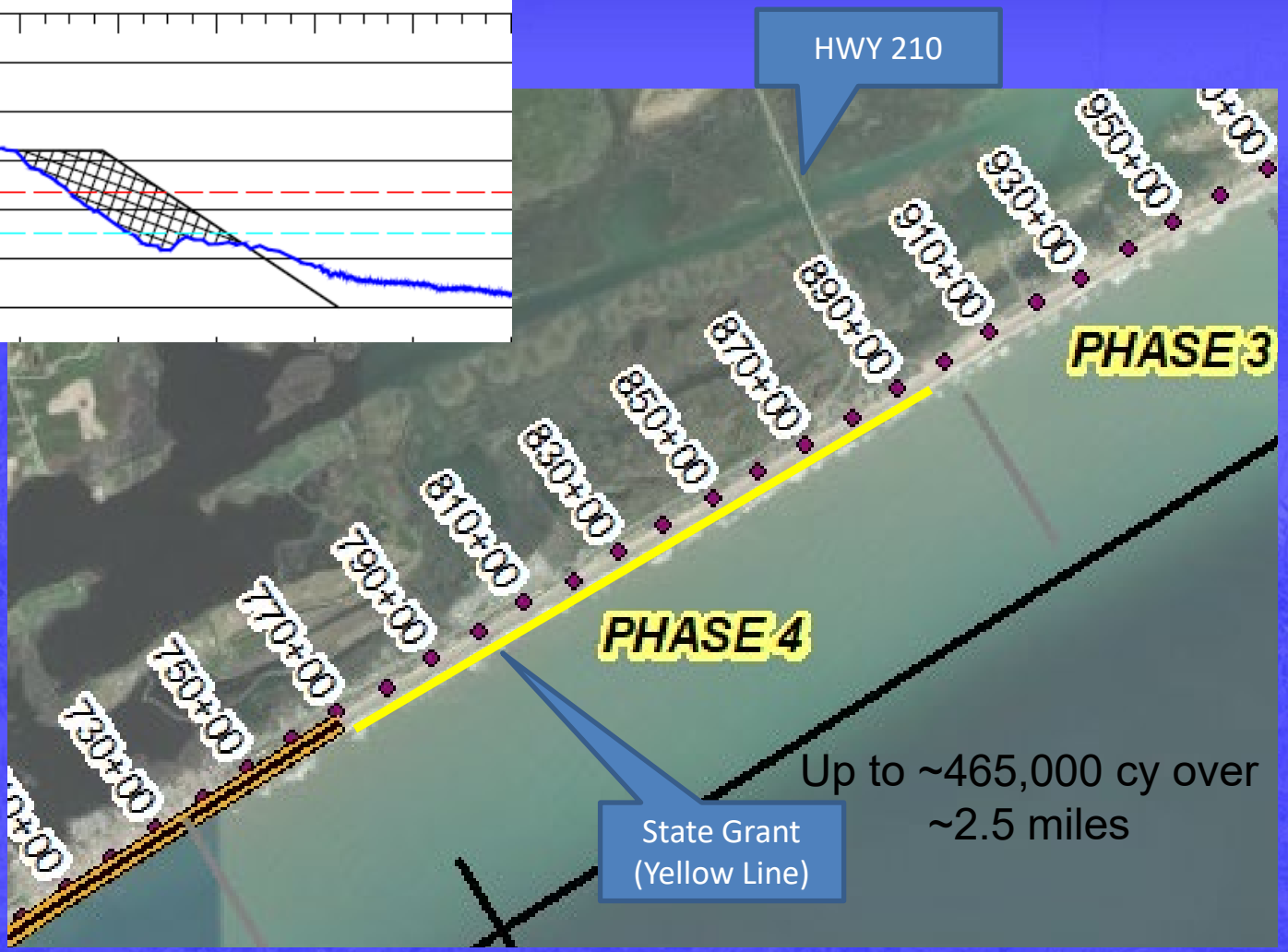
Town Limit

PHASE 5



State Grant in Phase 4. Beach (not Dune) Nourishmer

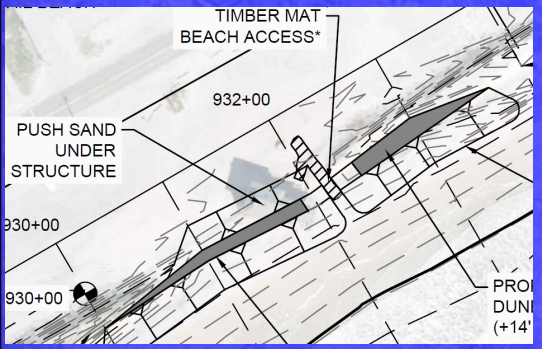




Project to Occur This Winter

County Beach Access Dune Rehabilitation

Figure 1: Dune Material Placement (photo taken February 3, 2021).



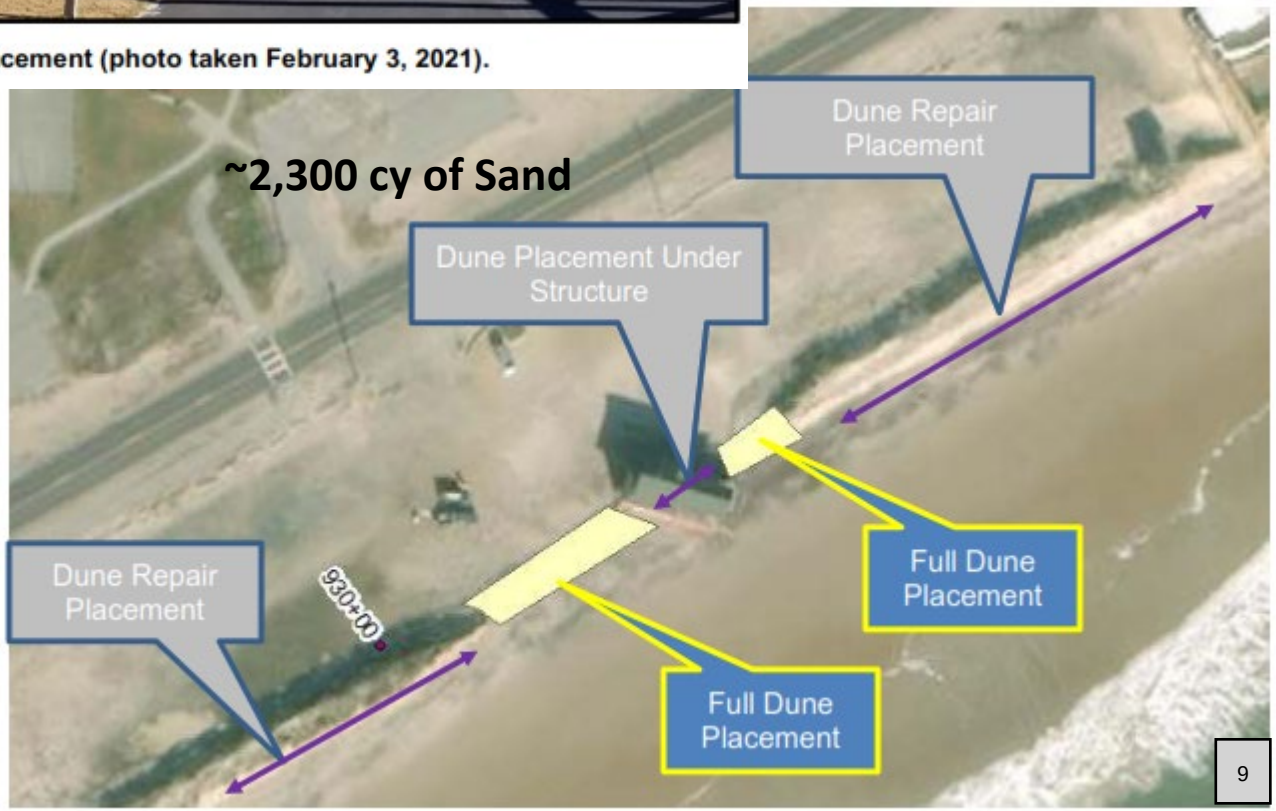


Figure 2: Plan view dune placement schematic.

Town Beach Projects Updates

- Phase 5 Beach Nourishment - ST Wooten started hauled ~120,000 cy over ~2 months. Will start up again November 16. ~180,000 cy remain.
- Hurricane Dorian Phase 1 FEMA Category G (15,000 cy) near Topsail Reef Villas and ~45,000 cy permitted. To occur in next environmental window (Nov 16, 2022, to April 1, 2023). Bidding next step.
- New River Inlet Management Master Plan EIS: Continued EIS processing and meetings.
- Working with NTB Finance Officer and DEC Associates regarding funding for upcoming FEMA and State funded projects
- Bidding of 2nd Phase 5 portion this summer.
- Sea Oat Planting (remaining Phases 1 to 4 and to include Phase 5) has begun and will continue for several months.
- USACE AIWW/Channel Dredging Bidding
- Permitting Coordination (all projects)
- County Beach Access
- State Grant (Phase 4)

Nature's Tranquil Beauty

Board of Aldermen
Regular Meeting Minutes
Wednesday, July 6, 2022, at 11:00 A.M.
North Topsail Beach Town Hall
2008 Loggerhead Court, North Topsail Beach, NC 28460

Present: Mayor McDermon; Mayor Pro Tem Benson; Aldermen Grant, Harte, Pletl and Swantek. Chief Younginer, Chief Soward, Town Manager Derian, Finance Director Elliott, IT Director Schwisow, Planning Director Hill, Town Clerk Mier, Attorney Edes.

I. CALL TO ORDER

Mayor McDermon called the meeting to order at 11:00 A.M.

II. INVOCATION

Alderman Pletl delivered an invocation.

III. PLEDGE OF ALLEGIANCE

Mayor McDermon led attendees in the Pledge of Allegiance.

IV. APPROVAL OF THE AGENDA

Alderman Swantek made a motion to approve the agenda. Alderman Grant seconded the motion. The motion passed unanimously, 5-0.

Mayor Pro Tem Benson asked for discussion adding and item under New Business about the NC State Legislative initiative for improved beach safety, mainly large holes on the beach.

Alderman Pletl made a motion to approve the amended agenda. Alderman Harte seconded the motion. The motion passed unanimously, 5-0.

V. CLOSED SESSION

Alderman Harte made a motion to go into closed session to consult with an attorney employed or retained by the public body in order to preserve the attorney-client privilege between the attorney and the public body, which privilege is hereby acknowledged (G.S. 143-381.11(a)(3)). Mayor Pro Tem Benson seconded. The motion passed unanimously, 5-0.

The Board entered closed session at 11:04 p.m.

Alderman Swantek made a motion to come out of closed session. Alderman Grant seconded. The motion passed unanimously, 5-0.

The Board came out of closed session at 11:41 p.m. Mayor McDermon stated that no action was taken during the closed session.

VI. MANAGER'S REPORT

Town Manager Derian presented the July 6, 2022, Town Manager's Report to the Board.

Beach Projects:

Phase 5 project

ST Wooten has completed the first phase of the Phase 5 Project. The final volume placed was 120,051 CY's of sand. The project is paused until November when at that point in time after turtle season the contract will resume. I have had conference calls with Mr. Carter and Engineers to discuss the second scheduled tranche in October. Fran has indicated that that the full 630,800 CY's are permitted. Fran is working to finalize the IFB for the second tranche for bids to be received by mid-September to press for the October LGC meeting.

Coastal Storm Damage Mitigation Fund Grant – Session Law 2021-180 Allocated $18M to the Division of Water Resources to be used to provide grants to units of local government.

Per statute (G.S. 143-215.73M) the fund may only be used for costs associated with beach renourishment, artificial dunes, and other projects to mitigate or remediate coastal storm damage to the ocean beaches and dune systems of the State.

The BISAC has recommended that the Town move forward with a grant submittal for this one-to-one state matched grant. Included on today's Agenda under New Business is approval to submit an application that has been prepared for $10.5 million dollars. This grant would enable the Town to extend the Phase 5 project 2.5 miles to the north to renourish Phase 4. Per statute, any project funded by revenue from the Fund must be cost shared with non-state dollars. Per clarification and confirmation from the state, FEMA funds would qualify as non-state dollars.

As I mentioned earlier, the IFB for Phase 5 is nearing completion and the intent is to amend this IFB to have Phase 5 as a base bid and the Phase 4 work that TI Coastal engineered to be an alternate bid that would be pursuant on the grant application. We will be issuing an IFB for 2 projects under one solicitation with the mindset of potential cost savings; particularly if the same contractor is awarded both bids to save on items such as mobilization. These will be considered 2 separate contracts. Tranche "A" for the FEMA work (Phase 5) and Tranche "B" for the Phase 4 work (Contingent upon grant funds).

Sea Oats Planting

Coastal Transplants continues to work on Sea Oats planting that resumed in May. July 6th through Mid-August they will be starting approximately 9,000 feet from St. Moritz and finishing at the Surf City town line. Mr. Gibson reported at the last BISAC meeting

that there may be left over plants that will be available to residents at the end of August should they want to do additional plantings. When we get closer to this point and there are plants available, we will notify residents on our website/fb page.

Living Shoreline Project

I have been working with the NC Coastal Federation since last October to initiate the first living shoreline project for the Town. Tracy Skrabel has been meeting with marine contractors to identify the ideal project for the Richard Peters Park site. The conclusion is to install an Oyster Catcher Marsh Toe Revetment due to the low wave and boat wake energy and soft substrate. This demonstration will be situated between the two piers. I learned a couple weeks ago that we will be awarded 100% of the costs through the grant which is ideal. Typically, there is a 75% award with a 25% match requirement. Thank you to the NC Coastal Federation for their support on this project. Tracy Skrabel and Kerri Allen are a tremendous asset to the Town.

FY 2022-2023 Budget

On June 8th the Board unanimously adopted FY 22-23 Budget. The budget, along with the budget message and slides were uploaded to our website.
The updated concert contract for the outdoor beach music festival planned for April 1, 2023 from 1pm to 6pm at Richard Peters Park has been received which reflects the amended date along with caveats for no vulgar language in the acts and that both parties may agree to a make-up date, in the same calendar year, with line up scheduled to change and a non-refundable $3,000 deposit. The total cost is $18,000 for 3 bands (one being Band of OZ). The contract has been provided to Attorney Edes for final review.

Disaster Preparedness

Contracts were executed in preparation for disaster debris removal and monitoring services. Staff has also attended trainings the past recent months for WebEOC, Damage Assessment and the functionality of CodeRED. With hurricane season upon us, we are encouraging all residents to double check that they are signed up for CodeRED alert system to receive emergency communication alerts. It is critical to have a plan and stay informed. I would just like to say Thank you to Stacie Miles, Onslow County Deputy Director for Emergency Services who attended the 4-town meeting that we hosted last month to speak with officials from NTB, Topsail, Holly Ridge and Surf City on preparedness.

Holiday Weekend

Staff met prior to the holiday weekend to plan and schedule for the Ocean City Jazz Festival and the expected influx of visitors for the 4th of July holiday.
The Jazz Festival kicked off Friday evening with a monumental historic occasion for the Ocean City community being the NC Civil Rights Trail Marker unveiling. Community members, dignitaries (including Mayor McDermon who gave the welcome speech) and

guests joined together to honor this special occasion. Between 2021 and 2023, the NC African American Heritage Commission will place 50 markers in counties across the state, highlighting and acknowledging tireless civil rights efforts. Ocean City is number 4 on this list! Thank you to Craig and Carla Torrey, Mr. Chestnut, and their committee for hosting such a memorable event and thank you to Staff, specifically the Public Works Dept, Fire Department and Police Department. The weather was a little uncooperative leading up to the event on Saturday, but all turned out well.

Police as well as two beach patrol individuals patrolled the beach throughout the holiday weekend. Police reported 2 accidents, 1 missing person, 15 firework calls, 6 Domestic calls, 13 assists with citizens, 4 medicals. Again, I want to say thank you to staff who did a phenomenal job this holiday weekend being proactive with patrols and responding as necessary.

VII. OPEN FORUM

One citizen addressed the Board.

Pat Maylan from 231 Seashore Drive. Ms. Maylan asked about why the ambulance on the island is only in the north end of the island and not in the middle of the town? She explained how a man fell in front of her house and it took a half hour for the ambulance to come. She stated the ambulance used to be down the other end of town and asked why can't it be in the middle? Mayor McDermon stated the Board can follow up. Ms. Maylan had a second question about debris pickup, asking why we don't have it? Mayor McDermon responded that we do have debris pickup and Town Manager Derian noted that we have three scheduled debris pickups, last one was around Easter and the next one is in the fall.

VIII. PUBLIC PRESENTATIONS AND HEARINGS

A. Case R-22-01 Jackson (Planning Director Hill)

Quasi-judicial: Town Attorney Brian Edes explained the need for all those who wish to provide testimony will need to be sworn in and they will be subject to cross examination. The applicant is entitled to a fair and impartial decision-making body which means that you base your vote today solely on the evidence adduced during this hearing. Attorney Edes asks the Board if anyone on the Board has a financial interest on the subject matter of this conditional R-15 rezoning application? Has anyone on the Board had any substantive discussion with staff about this application outside the context of this hearing? Has anyone made a site visit to the site for the purpose of assessing this application? Can any one of you think of any reason why you can't be fair and impartial and base your vote today solely on the evidence used during this hearing?

Alderman Swantek replied that he did have a financial interest. Attorney Edes recused Alderman Swantek from participating in the hearing. The remaining alderman answered in the negative to Attorney Edes questioning of the Board.

Attorney Edes explained the way they will proceed is that they will hear from staff. Staff will be subject to cross examination and questions from the Board. Then we will hear from the applicant. The applicant and whoever else testifies will be subject to cross examination and questions from the Board. Then he invites anyone else to speak who has standing to address this matter. Attorney Edes then invites all those who wish to provide testimony to come forward and be sworn in, Planning Director Hill, Mr. Riggs, Mr. O'Donnell.

Planning Director Hill introduces the case R-22-01, application by Mr. Charles Riggs for his clients Douglas and Lisa Jackson. Property located at 3621 Island Drive. Requesting to rezone the property from R-20 to conditional district R-15 single family only. Currently the property is vacant. Property is just to the south of Rodney Knowles town park. Property is approximately 38,295 sq ft. The request is consistent with the comprehensive plan and classified as low density with the future land use map. It's in a flood zone AE with base flood elevation of 11 ft. There's no wet-land delineation indicated on the plat. Property is served by both ONWASA water and Pluris sewer. Conditional districts, property may be placed only in response to all owners to be included, specific conditions may be proposed by the petitioner or the local government or it's agencies, but only those conditions approved by the local government and consented to by the petitioner in writing may be incorporated into the zoning regulations. Attached to the staff report
is a copy of the public notice and legal description of the property which is included in Mr. Riggs application. Response to the standards. The Planning Board heard this case as their meeting and unanimously approved, with the condition of single family only. Ms. Hill stated the notice was posted at both the Town Hall and the Towns website, published in the paper twice as well as at the property. Ms. Hill received two phone calls asking what was the intent of development? And also, three emails that were in opposition. Attorney Edes interjected and directed the Clerk to mark the emails for purposes of the record an email from Connie Gilman dated June 24th, 2022, sent at 4:45pm, an email from Bill O'Donnell dated June 13th, 2022, at 9:50am and an email from Marcia Fitzwater dated June 20th, 2022, at 12:06pm. Collectively those will be marked as exhibit 1. (Attached)
Attorney Edes asked Mr. Riggs if he had any objections to the three emails? Mr. Riggs indicated they have no objections to that coming into evidence.

Ms. Hill speaks about the response to standards and the five conditions. Exhibit 2 (Attached)

Attorney Edes asks Mr. Riggs if he has any objections to receiving this entire portion of the agenda packet related to this item into evidence as Exhibit 2?
Attorney Edes recommends to Madame Mayor that we accept this portion of the agenda packet pages 1 through 17 in the red lettering as Exhibit 2 without objection.

Attorney Edes asks Mr. Riggs if he has any cross-examination questions of Ms. Hill and Mr. Riggs declines. Attorney Edes then asks Board members if they have any questions for Ms. Hill?

Mayor Pro Tem Benson asks if this variance be approved would there be any concern over driveway connections in that area? Attorney Edes corrects Mayor Pro Tem Benson that this isn't a variance it's a conditional re-zoning but asks Ms. Hill to respond. Ms. Hill states that it would be a straight driveway just like any other connection along Island Drive.

Alderman Grant asks to clarify that they have 2.63 acres and they want to re-zone so they can have two homes on it? Ms. Hill responds by explaining with it being R-20 they do not have the lot width or size to subdivide it. But if it was conditional district R-15 than they would meet the dimensional requirements to subdivide the lot into two separate lots for single family homes.

Mayor McDermon raises the question if they were subdivided, they would be close to the same size as the neighboring parcels?

Ms. Hill responded saying R-20 is a minimum of 75 ft. and this lot would have to be at 150 ft. but are at 133 ft.

Alderman Pletl asks if this is approved as conditional R-15 and the current owners don't develop on it, does the conditional use transfer over if they sell it to someone else? Or do the conditional as single-family homes stand? Ms. Hill states it that conditional district stands until it is changed and approved by the Board in writing between the town and the owner.

Attorney Edes points out that under 160D, if there are any conditions appended to the approval they have to be consented to by the applicant. That both the zoning and the condition would be a pertinent which means it would run with the land and binding with subsequent purchasers. The only way they could come back and get re-zoned out of that conditional zoning status would be to apply for a re-zoning.

He pointed out the Planning Board decision was unanimous and recommended the condition would be single family only, when they subdivided the lot that will apply to that entire parcel subdivided or unified.

Mr. Riggs introduces himself and states he's here today to represent Douglas and Lisa Jackson. Mr. Riggs explains the property dimensions, states they can meet those standards and provided a map to show the entire R-20 zone that surrounds the property. Mr. Riggs points out the Jackson property has more width than any other parcel. Of all the properties the average lot width is around 74 ft. Thirty Three percent of the properties zoned R-20 in this area are not compliant with the 75 ft. The three emails that were against this rezone, only one is only 38 ft. wide. To maintain the integrity of the property the Jackson's would like to request R-15 zoning and to maintain the integrity of the property we were going to use the R-20 setbacks. We will still use the 30 ft. front and 10 ft. sides. All the Jackson's are asking for is the R-15 conditional so we can use our lot width reduction, get two single family lots, which is the goal here. Mr. Riggs states they are protecting the environment by keeping the zoning setbacks and fire safety compatible. They are

compatible with other property owners in the area. Compatible with the land use plan. He addressed the concern for traffic congestion and agreed there would be additional traffic because you would be creating another lot but doesn't feel a single-family lot would create additional congestion. Mr. Riggs made it a point to say this isn't considered spot zoning, because we are going from single family to single family. The remainder of the property is all zoned conservation and will remain CON-D. Mr. Riggs closing comment was that this was recommended for approval by the Planning director and the Planning Board.

Mr. Bill O'Donnell, 3612 Island Drive: States he's owned property in that area for 40 years, it's R-20 and it's always been R-20, contrary to what was suggested.
Attorney Edes asks how close is your property to the subject property?
Mr. O'Donnell responds that it is diagonally across the street.
Attorney Edes asks do you contend that if this rezoning is passed you will suffer damages distinct from the rest of the community?
Mr. O'Donnell states that zoning downgrading and zoning tends to decrease property values it will also tend to increase traffic, we have enough of that already with the Rodney Knowles Park, so it's adversely affecting me and my neighbors two of whom have already sent emails to deb which she supplied to the Board, there's nobody in the area that I'm aware of that's in favor of such rezoning.
Attorney Edes asks do you have any evidence that if this is passed, you're going to suffer some damages?
Mr. O'Donnell responds that it is just common sense if you want to build a house in R-15 buy a lot in R-15. People buy R-20 because they're bigger lots.
Attorney Edes recommends we allow Mr. O'Donnell to testify and ask Mr. Riggs questions.
Attorney Edes directs his attention back to Mr. O'Donnell and say's he can go one or two ways, you can provide your own testimony first or you can ask Mr. Riggs questions first but let us not bleed the two together, so do you want to ask Mr. Riggs some questions?
Mr. O'Donnell responds oh I will and I am sure he's very welcome to answer them too, he alluded to lots having more narrow driveways but where the houses are built is on the wide part of the lot. Those lots are key shaped lots and at the time they were built they met zoning regulations. I want to ask you Mr. Riggs what property has been rezoned in this area?
Mr. Riggs responds saying yeah, I'm not aware of any rezoning I believe that there's a good chance that I handled the majority of the surveys. But however, the strategy or the interpretation of the zoning requirements was different 30 years ago or 20 years ago as it is today whereas 20 years ago when they said 75 ft. width it was interpreted that would be where the house would build and not with the driveway the interpretation today does not reflect that. today it says 75 feet you have to have 75 ft. a width if that interpretation was enforced 20 years ago then the majority of those lots would not exist you would have less lots. That's the history of it.

Mr. O'Donnell continued his presentation by stating his lot is 75 feet wide. The other lots those key shaped lots did not exist when I bought my lot. It did not exist when my some of my southern neighbors bought theirs as R-20 lots where he is talking about the key shaped lots was one plot that could be like five lots. Five houses could be built meeting the 75 ft. width but the developer and I do not know who the developer was decided to gerrymander things such that he could get two houses where there was supposed to only be one. But he left the lot size where the house was built in the requirement of 75 ft. wide but allowed the more forward house to have a narrow driveway so that there could be a house built beside that narrow driveway also, he was just squeezing in more houses even though all of the portion where the house is built is 75 feet wide. That is not what Mr. Riggs is proposing at all but I don't think I have more questions for him so let me go ahead and do my presentation. I live at 3612 Island Drive as I have said I've lived on this island for 40 years I bought my current house as R-20 in 1987 because it had a large lot size and would be less crowded. That is why people buy R-20 because R-15 is a lot cheaper. In my 40 years on this island zoning has never been undermined like what's being proposed right now. It has always been respected; people buy a lot they expect that the zoning for that will stay the same and that's not what is being proposed now. As I said if you want R-15 buy R-15 if you want R-15 rules buy R-15. The fact that this lot was an R-20 was not a secret to anybody so I do not know if the Jackson's bought the lot originally or they bought it from somebody else. But I doubt that they were deceived about it being R-20. I feel that this will lower property values just as the fact that R-15 lots are less valuable than R-20 lots. I asked the Board to respect the current zoning and those of us who bought R-20 with a reasonable expectation that that would not be changed. I ask that you do not set such a bad precedent that people can go in and request their lots to be rezoned willy-nilly. When buy what you want and use what you buy. If you want R-15 buy R-15, they can sell their lots and go buy R-15 lots if they want that. Mr. O'Donnell had one final statement that he would like for the Board to consider having closed sessions at the end of a Board meeting.

Attorney Edes directs his question to Ms. Hill's staff report. Asking as to whether the criteria has been met if the approval is conditioned upon single family only and the use of R-20 setbacks?
Ms. Hill states she believes that the application has been met and with reference to the standards this conditional district came about with the adoption of the 160D general statutes to allow property owners more flexibility
Attorney Edes responds saying you would agree from your many years of planning experience that there is no such thing as a vested right and continued zoning designation? People can apply for resolving in fact we have several sections of our code that allow for people to apply to reasonable property.
Ms. Hill responds saying that is correct.

Attorney Edes states just so I am clear on your answer with the two conditions that the applicant agrees to. Single family only and R-20 setbacks. It is staff's position that the criteria have been met.

Ms. Hill states yes and it's also consistent with the town's comprehensive plan as adopted.

Attorney Edes goes through the evidence and takes inventory of it. He starts off by saying we first heard from Ms. Hill who introduced the item. Mr. Riggs decline cross-examination. Ms. Hill was subject to questions from the Board. We then heard from Mr. Charles Riggs on behalf of the applicant, he was subject to questions from the Board and Mr. O'Donnell and myself. We then heard from Mr. O'Donnell and then we then heard again from Ms. Hill. The Planning Board recommended this unanimously with the condition Ms. Hill described. Staff's opinion is that the criteria has been met and the applicant has agreed that if this is approved, they would agree to the conditions of single family only and the use of R-20 setbacks.

Each of the four voting aldermen voted to approve the motion in a roll call vote of the motion. Alderman Swantek did not vote because he was recused from the hearing. The motion passed unanimously, 4-0.

B. Proposed Amendment to the Unified Development Ordinance Table 4-1 and §4.03.23 Docks, Piers and Floating Walkways (Planning Director Hill)

On May 4th, 2022, there was a Board of Alderman meeting and Mayor Pro Tem Benson presented a report on unencapsulated polystyrene and requested that the Board direct the Planning Board to review BISAC proposed unencapsulated polystyrene ordinance and consider these guidelines as they reflect on the use of floats in docks, piers and floating walkways and construction of these structures. On May 12th the Planning Board reviewed the ordinance and considered the guidelines. It was recommended amending the UDO table 4-1, to include floating walkways as a use along with docks and piers as an accessory and principal structure and adding a specific standard prohibiting unencapsulated polystyrene in new construction of these structures. A policy statement to the CAMA Land Use Plan and the use of unencapsulated polystyrene as a floatation device for floating dock systems, floating walkways and floating structures. And at the Planning Boards recommendation Mr. Matthews made a motion to recommend the text amendment to 4.03 4.0323 docks, piers and floating walkways and to include the CAMA Land Use Plan policy statement. Mr. Dorazio seconded the motion. Vote was 4-1 for the motion with Mrs. Dixon voting against. In the event that the Board of aldermen approves or adopts the Planning Board's recommendation the CAMA Land Use Plan policy statement would have to be sent to the CRC.

Mayor McDermon requests a motion to approve the updated ordinance with modification to remove aquaculture and direct town staff to submit the policy statement to the CRC for approval.

C. Proposed Amendment to the Unified Development Ordinance §4.03.09 OUTDOOR SWIMMING POOLS, SPAS AND HOT TUBS (Planning Director Hill)

On April 6th, 2022, Board of Alderman regular meeting Alderman Grant requested a review of the campus standards, including recommendations for the Town of North Topsail Beach adopting higher standards than CAMA regulations. Mayor McDermon asked for the allowance of polls on the sound side to be reviewed as well. During the Planning Board meeting on April the 14th and in response to the Board of Alderman April 16th directive. Mr. Fontana made a motion that we request the Planning Director to review six compatible cities in towns similar to North Topsail Beach. Surf City, Topsail Beach and Emerald Isle all do not have sewer systems, so they were looking particularly at towns with larger lots similar to North Topsail Beach and came back with a recommendation as to whether or not we need to amend the current ordinance. Mr. Dorazio's second the motion the motion passed unanimously four to zero. On May the 12th as directed by the Planning Board, the following results are outlined in the report. During the Planning Board meeting on June the 9th and in response to Mayor Pro Tem Benson's June 1st request. Planning Board members considered the comments as they work to move forward with Alderman Grant's request to review of a possible swimming pool ban that would go beyond the CAMA rules and regulations for swimming pools and other structures in the dunes. The Planning Board unanimously recommends no changes to the most recently adopted texts in section 4.0309 outdoor swimming pools spas and hot tubs which is attached to the staff report.

Alderman Grant discusses the change in text, raises several questions to Ms. Hill and Mr. Riggs and stands behind his belief that we need to do something so that people putting in swimming pools don't disturb the dunes period.
Mayor McDermon asks if they can step back for a second and please make sure the whole Board is on the same playing field right now. And asks for a more educated dialogue on what the Planning Board is recommending.
Mr. Riggs states to the Board that they perform a topographic survey of the frontal primary dune. Explains that quite often you'll have a secondary dune and that's what he calls a secondary dune. Division of coastal management does not regulate that, other than calling it a dune.

Ms. Hill explains that CAMA for this town takes a lot and the regulations are changing all the time and there's a tremendous demand time wise, especially for the

staff. She emphasized how we need to rely on all those state folks that do CAMA. That's all they study and they don't care who the owner of the property is, they don't care necessarily what the zoning is or what's planning or North Carolina general statutes 160D, they don't care about flood regs and CRS. they're just paying attention to that CAMA side.

Alderman Pletl agrees that the pool in question at Dolphin Shores was quite shocking to look at. Do we have other places in town that that could happen the same, to your knowledge?
Ms. Hill responds that she's not sure there is. She is not sure that there's another area that has primary dunes.

Mayor Pro Tem Benson believes we need to rely on CAMA for coastal regulation and say's when towns need to try to observe what CAMA is doing. He believes if there's any question something isn't right, we should be going to the Coastal Resources Commission with ideas about what they should be doing and how they should be changing their rules for everyone not just for our small town or development. He states there's so much concern about this for our town, so let's try to be more restrictive and have a better idea. Contact the CRC and find out what should and shouldn't be happening in terms of the of the CAMA rules.

Fred Fontana – Planning Board Member: Addressed the Board to explain how the Planning Board conducted the survey and determined it was very difficult to come up with a valid reason why North Topsail Beach should do something different than everybody else Is doing that's in the same situation with the dunes. He stated maybe someone wants to write a letter to the CRC for further guidance.
Attorney Edes states it's a very dynamic environment so if you're going to go off of the CAMA definitions you have to have a workable definition that's not going to essentially prevent somebody from developing their property because a mound of sand build up after a storm. He has seen other towns try to vary the definition of dune from the CAMA definition and the logistics of that are difficult. Attorney Edes says that in such a dynamic environment so that ideally at the CRC they would pass more favorable rules to achieve what we're looking for here. But if we're going to go out of being more restrictive, we have to have a workable definition of dune that doesn't make every pile of sand a dune after a storm event or a wind event. If you do not have a workable definition of a secondary dune or something different than what CAMA finds as a dune, it's not going to achieve the objective.
Mayor McDermon points out Mayor Pro Tem Benson's suggestion on approaching the coastal management folks and see if we can have further discussion with them about what they consider dunes. What are they planning to do with allowing pools and placement of pools?

Mayor McDermon agreed with Attorney Edes on finding a workable objective, workable definition, things that our staff can work with. She said as a Board, they don't want every single pool application coming up as a variance or an issue. So again, she asked, what do we need to do from here? She does agree providing the definitions of all the dunes to the Board from CAMA may get everyone on a level playing field. She also would like to see conversation with CAMA and see where they see this moving in the future? She also reminded the Board we've got all these soundside properties with wetlands and everything else surrounding them as well the oceanfront property and she needs everyone to not forget about those properties as well. Mayor McDermon said there was really good dialogue and we need to keep this as a topic. She wants staff to reach out to Mr. Spencer, find out CAMA's definition of a dune and until then the Board isn't ready to make any changes based on the conversation today.

D. Proposed Amendment to the Unified Development Ordinance §4.03.11 (H)(1)(c) Storage boxes (Rogers Bay) (Planning Director Hill)

1181c storage boxes Rogers Bay came about by an application request for approval of both a craftsman seven foot by four-foot resin storm storage shed and a seven-foot by seven-foot resin storage shed. This proposal will promote beautification of the park by reducing lot clutter and also assist in the reduction of debris scattered during high wind weather conditions.
On May 12th the Planning Board reviewed the application. Mr. Dorazio made a motion and recommended the text amendment storage sheds not in excess of seven feet wide four feet deep, eight feet two inches in height, properly anchored, shall not be placed adjacent to any roadway and one shed authorized per lot. The dimensions are specific to ensure uniformity and diagrams are included with the application. Ms. Dixon second the motion the motion passed unanimously five to zero. Staff and Planning Board requests approval of the text amendment.

Mayor Pro Tem Benson made a motion to approve text amendment. Alderman Swantek seconded the motion; the motion passed unanimously, 5-0.

IX. CONSENT AGENDA

Alderman Grant made a motion to accept the consent agenda. Alderman Swantek seconded. The motion passed unanimously, 5-0.

X. CONTINUING BUSINESS

A. Mayor Pro Tem Benson regretfully informed the Board that Mr. Michael Pawelko has resigned from the BISAC committee. The Board has requested applications to fill the seat with a community member from phase three. Mayor Pro Tem Benson further noted that the committee has worked with engineer Chris Gibson who has

recommended the Board consider applying for the coastal storm damage mitigation grant.

B. Alderman Pletl discussed the latest Parks and Rec committee meeting. She focused on the Town's plan to purchase a publicly displayed Christmas tree, which has been approved within budget. She reminds every one of the next meeting which will be held July 19th at 6:30pm and she invites everyone to attend and always welcomes anyone who would like to become a committee member. The planned concert would not be held this October as scheduled but will be held in April of 2023. Alderman Pletl met with the Onslow County Parks and Recreation Director, Caitlin White to seek advice about projects and programs that were free, easy, budget friendly and relatively simple to do. Many of the ideas wouldn't take a large volunteer or staffing base and some will even bring in money for future events. Ms. White not only shared a variety of ideas, but also offered continued support from the county. Alderman Pletl reminded everyone that the Parks and Rec committee meets every third Tuesday of the month at 6:30 in the Town Hall. She welcomes anyone who has interest, whether you want to be on the committee or just simply participate with ideas, all are welcome.

C. Town Manager Alice Derian noted that at the last Board meeting they discussed receiving an offer for full asking price in the amount of $125,000 for the Folkstone Road properties. Per statute that governs the sale of real property, we issued a public notice regarding upset bids that was published on June 7th with a deadline for anyone wishing to upset the offer to submit a written bid by 5pm on Friday, June 17th. The bid received by Christopher and Tiffany Huie also accompanied the required 5% bid deposit. I am asking the Board to consider a motion to approve the offer to purchase and contract the Folkstone Road properties received by Christopher and Tiffany Huie in the amount of $125,000.

Alderman Swantek made a motion to approve the sale of Folkstone Road properties. Alderman Pletl seconded the motion; the motion passed unanimously, 5-0.

XI. NEW BUSINESS

A. Town Manager Derian stated during budget workshops we discussed the need to purchase a new Fire Truck to replace the 2007 Fire engine and we shared information on a 0% interest loan program that is available through Jones-Onslow Electric Membership Corporation. The latest quote we received through a vendor that is state approved is in the $700,000 range. The first step is for the Board of Alderman to adopt a Resolution to provide to Jones Onslow that details that the Town is seeking funds to facilitate in the purchase of a new fire engine and that we have been made aware of certain interest free economic development funding available through Jones Onslow. This Resolution will then go to Jones Onslow for approval by their Board. This Resolution will not be problematic with the LGC, because this commitment would be from Ad valorem tax which is a different

revenue source from our beach renourishment that goes before the commission for approval. Following approval from Jones-Onslow's Board at the end of this month, the Board will then be in a position to consider/authorize the purchase of the new truck which will take approximately a year to build.

Alderman Grant made a motion to adopt the resolution. Mayor Pro Tem Benson seconded the motion; the motion passed unanimously, 5-0.

B. Coastal Storm Mitigation Fund Grant Application

Looking for a motion to move forward and submit the grant application to the NC Department of Environmental Quality, Division of Water Resources for the Coastal Storm Damage Mitigation Grant in the amount of $10.5 Million Dollars as engineered by TI Coastal.

Alderman Grant made a motion to move forward with the grant application. Mayor Pro Tem Benson seconded the motion; the motion passed unanimously, 5-0.

Attorney Edes states that in connection with the Storm Damage Mitigation grant there will be additional bidding type work that needs to be done. He asks the Board to entertain a motion to authorize Town Manager Derian, to accept the ATM proposal subject to the permit line-item terms mutually agreed upon with the Town Manager and Town Attorney.

Alderman Grant made a motion to authorized Town Manager Derian to accept the ATM proposal subject to the permit line-item terms mutually agreed upon. Alderman Swantek seconded the motion; the motion passed unanimously, 5-0.

C. Ordinance No. 2022-0001 Prohibiting Unencapsulated Polystyrene Docks

Mayor McDermon request for motion to adopt the Ordinance.

Mayor Pro Tem Benson made a motion to adopt the ordinance. Alderman Grant seconded the motion; the motion passed unanimously, 5-0.

D. Regulation of deep holes in the beach.

Mayor Pro Tem Benson was contacted by the Mayor of Nags Head, Ben Calhoun. He is seeking support across coastal North Carolina to look at state legislation that would assist public safety in their ability to regulate deep holes on the beach. Recent tragic accident at Virginia Beach where two children dug a deep enough hole that it collapsed on them. Bystanders couldn't get them out fast enough and they died. This event sparked Mayor Calhoun to seek out Mayors from across coastal North Carolina in an effort to introduce legislation in Raleigh to give more authority to the public safety officers in a situation such as this. Mayor McDermon spoke about an

email that was sent from the Mayor that included observations and other specific incidents where people have been harmed by these big holes. We need to try an educate folks about not having the big holes in the beach and the harm it may cause. Mayor McDermon would like to support this legislation, stating it would be a positive thing for North Topsail Beach and obtaining additional tools in our toolbox in the event of large holes being dug. She's asking the Board to work on creating a resolution. Alderman Pletl agrees with supporting this and points out three factors that could benefit from making this change. The turtles, children, and emergency vehicles on the beach.

XII. **OPEN FORUM:** none

XIII. **ATTORNEY'S REPORT:** none

XIV. MAYOR'S REPORT

Mayor McDermon first recognized and thanked Town Manager Derian for the thoroughness with her report. She recognized and thanked the North Topsail Beach staff members for their help this past holiday weekend and understands all the hard work that goes into preparing for the Jazz Festival. She was thrilled to have had the opportunity to participate in such a historic event with the North Carolina Civil Rights marker.

XV. ALDERMAN'S REPORT

Alderman Pletl thanked the audience both in person and via the internet, she's extremely happy the pool dune issue is being kept alive and glad that the Town will consult with experts to gain more knowledge on the subject. She also attended the dedication ceremony for the Civil Rights trail marker and said it's very humbling and an honor that Ocean City Beach is located in this Town. She also thanked the staff for everything that they do, she said she's amazed by the work that is done to keep the town safe and running smoothly during this crazy season. She gave an update on a recent issue with a turtle being trapped under the Onslow County public access beach house. There's very limited access to assist a turtle out of that area but our Public Works department did a wonderful job and came out to assist. Alderman Pletl gave Steve many kudos with always helping place tags on fresh tracks. Right now the island has 76 sea turtle nests on the island and 48 of them are in North Topsail Beach.

Alderman Hart thanked Town Manager Derian for all her hard work with the grants and also thanked all those who attended the meeting.

Mayor Pro Tem Benson reported that he and Alderman Hart attended the Topsail Island Storm Protection commission meeting last month and he wanted to inform those members in the COBRA areas of North Topsail Beach. We are keeping our congressional delegation aware of the need for a technical correction to the cobra

area. He's passing on the information that for North Topsail Beach development, before this big crush of building started going on 73 percent of the non-cobra areas developed, but 64 percent of the cobra area now has structures on it. The maps need to be corrected to take the developed sections of cobra out of the map. The Shoreline Protection Commission is also working on bringing out beach clean initiative to Topsail Island and if anyone is interested, they will be rolling that out over the summer. If anyone is interested in specific information about the beach clean initiative, please go to the website tispc.org or just search beach clean tispc. The North Carolina resilience coastal community program and Planning Director Hill played a key role in applying for a phase two grant upwards of around 135 thousand dollars to help identify areas across the island where flooding is a persistent problem. Specifically talking about road flooding and how to manage it. The American Shore Beach Preservation Association has had a series called Blue Flag series. This is very common in Europe and they are bringing it to the U.S. and sponsoring a plastics workshop. Mayor Pro Tem Benson has attended two sessions over the last two months and the last one was on microplastics. Microplastics are prevalent throughout our environment. A recent new article spoke about how these microplastics are in our bodies and are teensy tiny little plastic debris that you can't see and anyone who is interested in participating in the North Carolina Coastal Federation citizen science program on sampling beach microplastics should email him for more info. Mayor Pro Tem Benson closed with how moving it was to attend the Civil Right marker ceremony in Ocean City.

Alderman Swantek thanked everyone for coming out and thanked Town Manager Derian and her staff.

Alderman Grant thanked everyone for attending and thanked Town Manager Derian and her staff for all the hard work at quickly removing the refugee boat from the beach. He has his fingers crossed on the grant application because he thinks it would be a great thing for the Town.

XVI. ADJOURNMENT

Alderman Swantek made a motion to adjourn. Alderman Harte seconded. The motion passed unanimously, 5-0.

The Board of Aldermen meeting adjourned at 1:57 p.m.

APPROVED
This 3rd day of August 2022

_____
Joann McDermon
Mayor

CERTIFIED
This 3rd day of August 2022

_____
Melinda Mier
Town Clerk

Town of North Topsail Beach

Nature's Tranquil Beauty

Board of Aldermen
Regular Meeting Minutes
Wednesday, June 1, 2022, at 11:00 A.M.
North Topsail Beach Town Hall
2008 Loggerhead Court, North Topsail Beach, NC 28460

Present: Mayor Pro Tem Benson; Aldermen Grant, Harte, Pletl and Swantek. Chief Younginer, Chief Soward, Town Manager Derian, Finance Officer Elliott, IT Director Schwisow, Public Works Director Poehiltz, Planning Director Hill, Deputy Town Clerk Winzler, Town Attorney Edes.
Via Zoom: Coastal Engineer Way.
Absent: Mayor McDermon.

I. CALL TO ORDER
Mayor Pro Tem Benson called the meeting to order at 11:00 A.M.

II. INVOCATION
Alderman Harte delivered an invocation.

III. PLEDGE OF ALLEGIANCE
Chief Younginer led attendees in the Pledge of Allegiance.

IV. APPROVAL OF THE AGENDA
Mayor Pro Tem Benson made a motion to add under continuing business a motion to approve the sale of Town property on Folkstone Road that we have been trying to sell for many, many years. We have a bid on that property now. Alderman Pletl seconded the motion. The motion passed unanimously, 5-0.

V. MANAGER'S REPORT
Town Manager Derian presented the June 1, 2022, Town Manager's Report to the Board (attached). Ms. Derian noted how busy the Fire Department was over the Memorial Day holiday weekend.
Alderman Grant thanked Ms. Derian and the Onslow County Manager for working together on the Onslow County beach access and rolling the beach access financing forward to next fiscal year. Mr. Grant asked that Town staff work to protect the Town Park located across the street from the county beach access from incoming high tides. He asked Ms. Derian to address drivers driving beyond the four-by-four limiting signage on the north end of the island. Ms. Derian explained there are two large signs on the beach, and once people drive passed them, the police department is poised to issue citations and will make the drivers move. Alderman Grant thanked the Police Department for their hard work over the Memorial Day weekend. Attorney Edes

commended Town Manager Derian for her efforts with the Onslow County beach access dune renourishment. Mayor Pro Tem Benson recognized Ms. Derian for her efforts and asked if citizens could make budget comments until the June 8th meeting, to which Ms. Derian confirmed. Mr. Benson invited citizens to make budget comments by email to the Town Manager or to drop them off at Town Hall. Town Manager Derian thanked the Kiwanis for their support and the donation of a free little library to be installed at the Richard Peters Park in the next week or so. Mr. Benson stated an intention to have a free little library installation ceremony with Alderman Grant and several Kiwanis officers when the time comes. Alderman Harte asked Ms. Derian for an update on the concert. Mr. Derian replied that she is awaiting communication from the promoter with an April date. The promoter recommended postponing the concert date until April with three bands in the contract.

VI. PLANNING BOARD COMMITTEE REPORT

Planning Director Hill presented the Planning Board Committee Report to the Board of Aldermen.

Alderman Swantek made a motion to appoint Susan Meyer and Stu Harness to the Planning Board. Alderman Grant seconded the motion; the motion passed unanimously, 5-0.

There was discussion about the Dark Sky Ordinance. Alderman Pletl thanked Ms. Hill. Mr. Grant inquired if the Planning Board could think about turning ocean-facing lights off at night during turtle season. Ms. Hill noted the enforceability of such an ordinance and suggested a public education component, such as refrigerator magnets and turning off ocean-facing lights at night for vacation rental programs. Mr. Benson suggested an island-wide initiative to include the Beach Clean initiative, the Topsail Island Shoreline Protection Commission and the Sea Turtle Hospital become involved with the public education component of the Dark Sky Ordinance to increase the impact.

Mr. Benson complimented and thanked Director Hill for the time and effort put into storm water management, positioning North Topsail Beach well for coastal resilience. Ms. Hill welcomed the opportunity to work with Surf City and Topsail Beach on a solution for the whole community.

Mr. Benson voiced support for the Rogers Bay shed text amendment to decrease lot clutter and suggested removing the “use in aquaculture” verbiage from the CAMA Land Use Plan modification noted in the Proposed Unencapsulated Polystyrene Ordinance. Ms. Hill suggested leaving it in to protect future changes in policy.

Mr. Swantek asked if the amendment protected frontal, secondary and primary dunes. Ms. Hill confirmed and noted the inclusion of the estuarine dunes as well. She did note that beach access and gazebo installation does include dune disturbance but suggested placing the onus on the inspector for the correction of such dune disturbance within a certain period after completion of the beach access or gazebo installation. If they do not correct it, a notice of violation may be issued. Mr. Swantek asked how did CAMA allow such dune disturbance while CAMA is not allowing beach access structures to be built? Ms. Hill noted that the original pool plan had the swimming pool built into the side of the dune, which is not consistent with the flood ordinance and was denied. Ms. Hill

noted the Planning Director's responsibility for upholding the zoning and flood codes, as well as the CAMA Land Use Plan and an equal obligation to work with property owners to develop their property to the highest and best use within those regulations. CAMA did allow for the placement of the pool on top of the dune, and Ms. Hill verified with NFIP that it was consistent with the flood code. This gives the Town the opportunity to review the ordinance and to review the language and revise it and still allow for development that is consistent with the desire of the town. Mr. Swantek clarified that he was asking about the beach access, not the pool. Mr. Benson brought the discussion back to the topic of swimming pools. Ms. Hill offered to discuss the beach access with Division of Coastal Management to ensure that it is consistent with their CAMA permit. Ms. Derian stated that she forwarded Mr. Swantek's email with pictures to CAMA for confirmation that they are within their CAMA permits, noting that they received a CAMA permit for the post and rope up to the dune. Mr. Grant appreciated Ms. Hill's effort of checking the 1049(b) section for exceptions and loopholes. He applauded the work of the Planning Board in the language of the text amendment. He clarified that the intent is that a dune cannot be disturbed for installation, then fixed after. Mr. Grant thanked Ms. Hill again. Mr. Benson gave a statement about the swimming pool ordinance text amendment for the Planning Board to consider at their meeting on June 9, 2022. Mr. Grant stated his awareness of legal ramifications resulting from changing the ordinance. He noted sometimes you must spend money to protect the Town and warned the Board against not acting because of potential litigation. Town Attorney Edes agreed and suggested that enforcement is easier when the rules are consistent with the CAMA regulations, but the key to being more restrictive is having plain language and easy to understand definitions. The more discretion given to the individual enforcing the ordinance, the more likely you're susceptible to a legal challenge. Ms. Hill asked that any legal issues be addressed by the Town Attorney when presented to the Board of Aldermen. Mr. Benson agreed.

VII. OPEN FORUM: No one came forward to speak.

VIII. PUBLIC PRESENTATIONS AND HEARINGS

COASTAL ENGINEER UPDATE

Mr. Fran Way presented a slideshow "North Topsail Beach Coastal Update June 2022" to the Board. He noted these on-going projects:

- Phase One Projects:
    - Hurricane Dorian FEMA Category G Nourishment project permitting is being completed and the Town has funding. Work will begin November 16, 2022-April 23, 2023. Bidding is the next step.
    - New River Inlet Management Master Plan- Work is being done on the Environmental Impact Statement (EIS) plan in coordination with Dial-Cordy and Mickey Sugg with US Army Corps of Engineers (USACE).
    - USACE will be placing sand in this area. Bidding will occur in July, bidding results announced in August. Expect a scheduling update in September.
- Phases Two through Four:
    - Have dune project work.

- Phase Five project truck haul:
    - First part:
        - One hundred twenty thousand cubic yards of material with good color and good consistency and good compaction have been placed over four thousand feet by the end of April 2022. The regulators are happy with this material.
        - There are one hundred seventy thousand cubic yards of material and seven thousand feet to go in this project which will resume November 16, 2022.
    - Second part:
        - They will begin bidding the second three hundred thousand cubic yards this summer. Funding coordination for this project in ongoing with Finance Officer Elliott and DEC Associates.
- Onslow County Beach Access Full Dune Replacement:
    - Coordination between DCM, CAMA, Town Staff, County, Wildlife Recourse Commission, and Town Attorney Edes
    - May 4, 2022, funding issue arose.
    - Two thousand, three hundred cubic yards of sand to be placed in November
- Sea Oat Planting:
    - Sea oat planting is going for the next several months in all 5 phases.
- State Grant Funding:
    - Mr. Way suggested that the Town look into this and offered his aid.

Alderman Grant voiced concern that last year's projects started late. He asked that the Town Manager require Mr. Fran and Mr. Carter prepare a Gantt chart to ensure that projects in the future begin on time. He noted that this may tie into the special obligation bonds (SOB) and reimbursement from FEMA which affect the Town's cash position. Mr. Benson asked if any one company has the capacity to haul all five hundred thousand cubic yards of sand in the four-to-five-month window starting November 16th. Mr. Way replied that the vendor placed about sixty thousand cubic yards a month previously, so in a five-month period, three hundred thousand was attainable. Perhaps seventy-five thousand or one hundred thousand cubic yards per month might be attainable but tough. Mr. Benson asked about than one drop-off site and two sets of off-road trucks working concurrently. Mr. Grant noted that the permit requires the complete layer of sand be placed, rather than a thinner layer to cover more distance. He asked that the engineers look at this a viable option to be able to place sand everywhere, rather than have sections missing sand placement. He asked that more than one vendor be considered and that everyone receive something.

Town Manager Derian stated that a meeting would be scheduled in the next week to nail down dates and timing, accounting for the bid award in September, Local Government Council (LGC) approval in October, and work beginning in November. She directed Mr. Way to lay out the scope of work in relation to Mr. Grant's request. She noted that FEMA reimbursement has been taking between three and six months, and there is one million, two hundred eighty thousand dollars outstanding for the category

G project that commenced one month ago, as well as one million, four hundred sixty thousand dollars outstanding for the category B project from Hurricane Dorian commenced 3 months ago. Mr. Grant requested that Ms. Derian give the Board an update on the SOB process and that Mr. Carter give the Board an update on interest rates at the next Board meeting.

IX. CONSENT AGENDA

Alderman Pletl made a motion to accept the consent agenda. Alderman Swantek seconded. The motion passed unanimously, 5-0.

X. CONTINUING BUSINESS

a. BISAC UPDATE

Mayor Pro Tem Benson stated that the Beach, Inlet, and Sound Committee (BISAC) met on May twenty-fourth, and discussed the North Carolina Beach, Inlet and Waterway Association (NCBIWA) meeting. He noted that BISAC members will be attending in the future. They also discussed the thirty-year engineered beach management plan, which is important for streamlining permit issuance for beach renourishment projects moving forward, in all five phases, over all eleven miles of shoreline in North Topsail Beach. The BISAC recommendation to the Board is to direct the BISAC Committee to begin initial scoping work needed for an engineered beach management plan with consultant costs to be covered by funds set aside in the proposed 2022-2023 budget in fund thirty and that we explore funding opportunities to cover Town costs in this, estimated to cost around one hundred-fifty thousand dollars over a three-to-four-year period. Mr. Grant noted that the Town is applying for a grant in July of which the funds may be used for beach engineering. If the Town is awarded that grant, it will help offset the cost of the beach engineering. Town Attorney Edes advised the Board that once the budget is passed, no action is necessary at this point. Each member of the Board individually accepted the BISAC committee's report.

b. PARKS AND RECREATION UPDATE

Alderman Pletl gave the Board the parks and recreation committee update. She reported that on May 17th, 2022, a committee meeting was held with five attendees: including the two official committee members, Alderman Swantek, Alderman Pletl, and one additional attendee. The committee voted to not recommend having the Town-sponsored music festival in October because of the limited time for planning the event, which may be a moot point as the event is being moved to April 2023. The committee is working on the details of the Parks and Recreation program. Ms. Pletl will be meeting with Caitlin White of the Onslow County Parks and Recreation Department. She has also spoken with and will be meeting with Jodie Padgett Shepard of Surf City Parks and Recreation Department. Several people have offered to help with the committee and Alderman Pletl encourages and invites all interested folks to attend the next meeting on June 21st, 2022, at 6:30 p.m. at North Topsail Beach Town Hall.

c. APPROVAL OF THE SALE OF TOWN PROPERTY ON FOLKSTONE ROAD

Town Manager Derian stated that at a previous meeting the Board approved listing the Town-owned lots on Folkstone Road for sale. The Town received a full-price offer on those lots. Ms. Derian requested Board approval to execute the documents for the sale of the property for the full price amount of one hundred twenty-five thousand dollars. Town Attorney Edes stated that the Town needs to go through the ten-day upset bid process, and that the Board action would be to announce to the public that the Board intends to accept the offer, subject to the ten-day upset bid process, and suggested a motion to move forward with that offer and go through the statutory required upset bid process. **Alderman Grant made a motion to accept the offer and direct the Town Manager to move forward and comply with the statutory requirements including any upset bids.** Town Attorney Edes recommended that the Board considers the offer acceptable to the point that the Board is directing staff to move forward with the upset bid process, because the Town may reject the offer or any upset bid offer at any time the Board wants to. **Alderman Grant made a revised motion to consider the offer acceptable to the point that the Board is directing staff to move forward with the upset bid process. Alderman Swantek seconded. The motion passed unanimously, 5-0.**

XI. NEW BUSINESS

a. TEMPORARY EMERGENCY OPERATIONS CENTER

Town Manager Derian reviewed the interlocal agreement with Onslow County for the creation of an emergency operation center. The agreement permits North Topsail Beach to use designated areas of Coastal Elementary School and parking areas upon a request by the Town Manager or the Mayor in the event of opening an EOC (Emergency Operations Center) and/or staging area to respond to a federal, state or locally declared emergency.

Ms. Derian requested the Board make a motion to approve the interlocal agreement with Onslow County. **Alderman Grant made a motion to approve it.** Mr. Grant stated his assumption this agreement is standard. Ms. Derian confirmed the Town has had interlocal agreements previously. **Alderman Harte seconded.** Alderman Pletl asked for clarification that Board is not using the hotel off the island as an EOC. Ms. Derian stated that the school EOC is an option. Ms. Pletl stated she thinks it's a good option, and that the Town has done it in the past, setting up an emergency operations center at the other elementary school. This is the newer school on Folkstone Road.

The motion passed unanimously, 5-0.

b. RFP 2022-001 DISASTER DEBRIS CLEARANCE AND REMOVAL SERVICES

Town Manager Derian stated that the request for proposal (RFP) for these services was issued, bids were received May twenty-fifth for the services, and relevant staff has reviewed those proposals. This is an on-call contract, broken out by individual labor costs for debris management, site management, tree cutting, et cetera to be activated in case of a man-made or natural disaster requiring a large-scale debris cleanup throughout the town, with no fixed fee.

Staff recommends that this contract be awarded to Crowder Gulf at this time. Ms. Derian requested a motion. **Alderman Grant made a motion to approve it. Alderman Harte seconded.** Town Manager Derian noted that these contracts are required for the cleanup funds to be eligible for FEMA reimbursement. **The motion passed unanimously, 5-0.**

c. RFP 2022-002 DISASTER DEBRIS MONITORING AND INSPECTIONS SERVICES
Town Manager Derian stated this is also related to disaster debris management services for monitoring. FEMA eligibility requirements suggest two bids. This RFP initially received only one bid submission. Ms. Derian re-posted the bid solicitation and extend the period to June 10th, 2022. This is an on-call contract to be activated along with the other contract the Board approved with Crowder Gulf. The purpose of this contract is to monitor and ensure compliance with the disaster debris removal process. Ms. Derian requested a motion to authorize staff to award a contract to the most responsive and responsible bidder as determined by the Town Manager and Town Attorney, and noted it will be ratified on the consent agenda for July. **Alderman Pletl made the motion. Alderman Harte seconded.** Alderman Grant asked Town Attorney Edes if the second posting does not receive two bids, if the Town would be ok? Attorney Edes responded that is should be ok. **The motion passed unanimously.**

XII. OPEN FORUM: none.

XIII. ATTORNEY'S REPORT
Attorney Edes apologized for not getting the County access work finished; he appreciates the County's agreement to roll those funds over to next fiscal year. He again commended the Town Manager's herculean efforts to try and complete it this season.

XIV. MAYOR'S REPORT: The Mayor was not in attendance.

XV. ALDERMEN'S REPORT
Alderman Pletl thanked everyone for attending virtually and in-person. She noted how busy the holiday weekend was and commended the police department and fire departments for doing an outstanding job. She re-iterated Alderman Grant's earlier comment about public safety being our number one issue, and they do a good job. Thank you so much. It's sea turtle nesting season, and the Town is a sea turtle sanctuary. As of today, Topsail Island has eleven sea turtle nests, and eight of which are in North Topsail Beach. She thanked the beach patrol and public works for helping the turtle project this weekend, and she asked people to keep their oceanfront lights off and to close their oceanfront blinds. Ms. Pltel urged everybody to attend the budget meeting next Wednesday at 1:00 p.m. and to attend the Parks and Recreation meeting on June 21st at 6:30 p.m., and to have a safe and happy Fourth of July.
Alderman Harte thanked everybody for attending. He appreciates the fire department and police department very much.
Alderman Swantek thanked the police department for doing a great job, especially locating a lost child and monitoring the four-wheel drive section of beach.

Alderman Grant thanked the police and fire department for doing a great job. He complimented Mr. Benson on the original idea for the BISAC committee. He thanked everyone for coming and wished everyone a great Fourth of July.

Mayor Pro Tem Benson said that he attended NCBIWA meeting at the beginning of the month and found it to be very productive. He is hoping the Town purchases a water level sensor to inform citizens when there will be sound-side flooding, as well as property and street flooding. The Topsail Island Shoreline Protection Commission met last week. They are working on the final stages of web presence for the Topsail Island Beach Clean Initiative with a launch goal prior to July 4th, and they hope to have an exhibit at the turtle hospital to educate the public. There is a virtual Washington commission meeting coming up on June 7th to speak with the congressional delegation and to other government agencies. Mr. Benson attended the virtual UNC School of Government's Ethics Class required of all elected officials with Alderman Harte. He thought it was a pretty good workshop.

XVI. CLOSED SESSION

Alderman Grant made a motion to go into closed session to consult with an attorney employed or retained by the public body in order to preserve the attorney-client privilege between the attorney and the public body, which privilege is hereby acknowledged (G.S. 143-381.11(a)(3)). Alderman Swantek seconded. The motion passed unanimously, 5-0.

The Board entered closed session at 12:40 p.m.

Alderman Swantek made a motion to come out of closed session. Alderman Pletl seconded. The motion passed unanimously, 5-0.

The Board came out of closed session at 1:05 p.m. Mayor Pro Tem Benson said that no action was taken during the closed session.

XVII. ADJOURNMENT

Alderman Swantek made a motion to adjourn. Alderman Harte seconded. The motion passed unanimously, 5-0.

The Board of Aldermen meeting adjourned at 1:05 p.m.

Town Manager's Report
June 1, 2022

Beach Projects

• **Phase 5 project:** ST Wooten has completed the first phase of this project. The final volume placed for this phase of the project was 120,051 CY's of sand. The project will be paused until November.

• **CAT B Dune Restoration Project:** Work officially resumed on Monday, May 2nd and was completed on May 9th • This was the truck haul project in the area of St. Regis to north of the pier. The contractor placed approximately 8,100 CYs of sand. We exceeded the amount of 7,300. Mr. Way reported there is typically a higher tolerance for very small unit placements such as this. I have discussed specifically the Goldsboro Lane area with Fran and asked between now and November go back and see if that area needs

revisited in November.
• **County Dune project:** I worked daily on trying to facilitate the completion of the 2,200 CYs of sand to be placed at BA4. There was a lot of back and forth between us, the County and state in regards to permitting. Last week, due to another email received from the state, they indicated the Town would have no relief from liability under provisions of the Endangered Species Act and at that point in time we were losing time to guarantee the contractor could complete work early last week as opposed to Thursday/Friday of last week going into Memorial Day. I emailed the County Manager requesting that the funds be rolled over into next FY so we can complete the project in November, and she has instructed their Finance Director to roll the funds so they will be available for us to request reimbursement.
• **Sea Oats Planting:** Coastal Transplants continues to work on Sea Oats planting. They started work where they left off near BA 4 and started working South. They were scheduled to be near St. Moritz going south last week through Memorial Day. This week they will be planting northern limits of the project of BA 4 and will continue in this direction until approximately June 23rd . June 24th, they will flip back south starting approximately 3,000 feet south of St. Moritz and moving approximately 6,000 feet. July 6th through Mid-August they will be starting approximately 9,000 feet from St. Moritz and finishing at the Surf City town line.
• **Updated EIS:** The Mayor, Mayor Pro Tern and I met with Mickey Sugg from USACE and requested an updated timeline, which has been provided. They are on Task #6 which indicates they are working to prepare the draft EIS and public scoping report. This is scheduled to be completed July 31st. From there they will prepare the Biological Assessment and Essential Fish Habitat Assessment which will take until October.

FY 2022-2023 Budget
• Our Budget workshops were held on March 30th , April 13th, May 23rd and the Budget hearing on May 23rd. The budget is available at our office for public inspection, and we have a meeting scheduled on June 8th at 1:00pm to adopt the FY 22-23 Budget.

Holiday Weekend
• Staff met a couple weeks prior to the holiday to plan and schedule as necessary for the expected influx of visitors. We deployed the Town's VMS board at the foot of the bridge a week in advance of the holiday weekend to advise visitors of rules such as staying off the dunes, leash your dogs, no glass on the beach. Police as well as two beach patrol individuals patrolled the beach throughout the weekend. Police reported 41 glass bottle violations, 26 dog violations and 3 dune violations. Code enforcement also did a sweep in the overnight hours looking for personal property items left behind and did not find much.

New Business Items
• **Interlocal Agreement with Onslow County for Creation of Temporary Emergency Operations Center**
This Agreement provides for NTB to be permitted use of designated areas of Coastal Elementary School and parking areas upon the request by the Mayor or I in the event of opening an EOC and/or staging area to respond to a federal, state or locally declared emergency.
• **RFP 2022-001 Disaster Debris Clearance and Removal Services**
Bids were received on May 25th for the aforementioned services in which relevant staff has reviewed. This is an on-call contract that would be activated in the case of a man made or natural disaster event that would require a large-scale debris clean up within the Town. Staff recommends that the contract be awarded to Crowder-Gulf at this time.

• **RFP 2022-002 Disaster Debris Monitoring & Inspection Services**
Bids were due on May 25th for the aforementioned services. Due to only receiving one bid submission, I have re-posted the solicitation extending this until June 10th. FEMA eligibility requirements suggest you need to have two bids. This is an on-call contract that would be activated along with the contract for Disaster Debris Clearance and Removal Services. The purpose of the contract is to monitor and ensure compliance with the disaster debris removal process. Requesting a motion to authorize staff to award a contract to the most responsive and responsible bidder as determined by the Town Manager and Town Attorney. This will be ratified on the consent Agenda for July.

(End of Town Manager's Report)

APPROVED
This 3rd day of August 2022

_____
Joann McDermon
Mayor

CERTIFIED
This 3rd day of August 2022

_____
Melinda Mier
Town Clerk

BOARD OF ALDERMEN MEMORANDOM

TO: MAYOR MCDERMON AND ALDERMEN

FROM: Caitlin Elliott, Finance Officer

SUBJECT: Monthly Financial Report

DATE: July 22, 2022

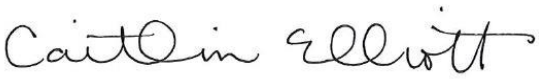
The following events occurred during the month of July of 2022 in the Finance Department:

- Work on the June 30, 2022 audit is underway and expected to be wrapping up beginning of August.
- Reimbursement requests have been submitted for the FEMA CAT G beach renourishment project that began earlier this year in Phase 5. We expect to receive these funds in the next 30-60 days which will then be applied to the FEMA Special Obligation Bond held with PNC.
- We have been approved by Onslow County's Tourism Grant in the amount of $150,000. This amount will go towards the Town's annual payment of the USDA Special Obligation Bond later this year. We were also approved $10,000 for Onslow County's Tourism Capital Grant that will go towards Ocean City initiatives. You will see budget amendments for these amounts in this month's packet.
- This month's packet contains a current Budget to Actual Report as well as a graph for the period.
- June's paid parking revenues yielded $98,501. This ended the fiscal year with total collections at $660,455.
- For property taxes this month, we have received a whopping $346.13 from Onslow County. The 2022 property tax bills should be going out in the next few weeks and then we will see an increase of collections. June's Motor Vehicle Taxes have yet to be transferred.

- During July we processed approximately $408,259 in accounts payable. A copy of the check registers is enclosed for review.
- We have collected $397,368.77 for Occupancy Taxes so far during July from short-term rentals during the month of June. The report is attached. For revenue comparisons, last year during the same period we collected $354,224.25.
- This month we received $257,375.80 for Sales and Use Tax, for May collections. Last year, for comparison, we collected $228,799.12 for the same period.

If anyone has any questions, concerns, or needs additional information, please do not hesitate to ask!

Respectfully submitted,



Caitlin Elliott
Finance Officer

Period Ending 6/30/2023

10 GENERAL FUND

Description	Budget	Encumbrance	MTD	YTD	Variance	Percent
Revenues						
10-301-00 AD VALOREM TAX - Current Year	3,678,714	0.00	0.00	4.88	(3,678,709.12)	0%
10-301-01 AD VALOREM TAX - Prior Years	50,000	0.00	0.00	341.25	(49,658.75)	1%
10-301-02 AD VALOREM TAX - MOTV	70,000	0.00	0.00	0.00	(70,000.00)	
10-317-00 AD VALOREM TAX Penalties	3,000	0.00	0.00	20.09	(2,979.91)	1%
10-329-00 INTEREST	15,000	0.00	0.00	23.18	(14,976.82)	0%
10-335-00 MISCELLANEOUS	5,000	0.00	0.00	63.00	(4,937.00)	1%
10-335-01 MEETING ROOM	500	0.00	0.00	0.00	(500.00)	
10-336-07 SALE OF TOWN MERCHANDISE	5,000	0.00	0.00	0.00	(5,000.00)	
10-337-00 UTILTIES FRANCHISE TAX	330,000	0.00	0.00	0.00	(330,000.00)	
10-341-00 BEER & WINE TAX	3,400	0.00	0.00	0.00	(3,400.00)	
10-343-00 POWELL BILL ALLOCATIONS	25,000	0.00	0.00	0.00	(25,000.00)	
10-345-00 LOCAL OPTION SALES TAX	1,864,500	0.00	0.00	191,744.97	(1,672,755.03)	10%
10-347-02 SOLID WASTE DISP TAX	750	0.00	0.00	0.00	(750.00)	
10-350-00 RECREATION -RENTAL FEES	1,500	0.00	0.00	625.00	(875.00)	42%
10-350-01 PAID PARKING REVENUE	182,500	0.00	0.00	24,625.25	(157,874.75)	13%
10-351-01 OFFICER CITATIONS & COURT	5,000	0.00	0.00	249.00	(4,751.00)	5%
10-352-01 FIRE FINES & VIOLATIONS	2,000	0.00	0.00	0.00	(2,000.00)	
10-352-02 PARKING/CODE ENFORCEMENT FINES	20,000	0.00	0.00	250.00	(19,750.00)	1%
10-352-03 PLANNING DEPT. FEES	6,000	0.00	0.00	0.00	(6,000.00)	
10-355-00 BUILDING PERMITS	85,000	0.00	0.00	6,406.50	(78,593.50)	8%
10-355-01 MECHANICAL PERMITS	15,000	0.00	0.00	980.00	(14,020.00)	7%
10-355-02 ELECTRICAL PERMITS	18,000	0.00	0.00	980.00	(17,020.00)	5%
10-355-03 PLUMBING PERMITS	2,500	0.00	0.00	0.00	(2,500.00)	
10-355-04 INSULATION PERMITS	500	0.00	0.00	0.00	(500.00)	
10-355-05 HOMEOWNERS RECOVERY FEE	300	0.00	0.00	30.00	(270.00)	10%
10-355-06 TECHNOLOGY FEE	7,500	0.00	0.00	452.84	(7,047.16)	6%
10-355-07 REINSPECTION FEE/FINES	3,000	0.00	0.00	0.00	(3,000.00)	

Period Ending 6/30/2023

10 GENERAL FUND

Description	Budget	Encumbrance	MTD	YTD	Variance	Percent
10-357-08 ZONING PERMITS	20,000	0.00	0.00	1,050.00	(18,950.00)	5%
10-359-00 REFUSE COLLECTION FEES	514,524	0.00	0.00	41,167.64	(473,356.72)	8%
10-359-50 VACANT LOT SWF	10,000	0.00	0.00	0.00	(10,000.00)	
10-359-51 LOST CART REPLACEMENT	2,000	0.00	0.00	80.00	(1,920.00)	4%
10-359-52 ADD'L CART RECYCLING	2,500	0.00	0.00	0.00	(2,500.00)	
10-367-01 SALES TAX REFUNDS	20,000	0.00	0.00	0.00	(20,000.00)	
10-368-01 GRASS MOWING REIMB	8,396	0.00	0.00	0.00	(8,396.00)	
10-368-02 GRANT FUNDS	57,400	0.00	0.00	0.00	(57,400.00)	
10-382-00 SALE OF LESO ASSETS	5,000	0.00	0.00	0.00	(5,000.00)	
10-383-00 SALE OF FIXED ASSETS	20,000	0.00	0.00	0.00	(20,000.00)	
Revenues Totals:	7,059,484	0.00	0.00	269,093.60	(6,790,390.76)	4%
Expenses						
10-410-02 SALARIES	36,000	0.00	0.00	3,000.00	33,000.00	8%
10-410-05 FICA (7.65%)	2,754	0.00	0.00	229.50	2,524.50	8%
10-410-14 TRAVEL & TRAINING	2,000	0.00	0.00	0.00	2,000.00	
10-410-33 DEPARTMENTAL SUPPLIES	1,500	0.00	0.00	0.00	1,500.00	
10-410-42 CHARTER CODES SERVICE	5,000	0.00	0.00	0.00	5,000.00	
10-410-43 AUDITOR FEES	15,500	0.00	0.00	6,250.00	9,250.00	40%
10-410-45 TAX COLLECTION FEES	62,000	0.00	0.00	0.00	62,000.00	
10-410-47 PROFESSIONAL SERVICES	100,000	0.00	0.00	2,045.00	97,955.00	2%
10-410-50 DONATIONS OTHER AGENCIES	6,000	0.00	0.00	1,000.00	5,000.00	17%
10-410-53 DUES & SUBSCRIPTIONS	2,750	0.00	0.00	1,757.00	993.00	64%
10-410-57 MISCELLANEOUS	500	0.00	0.00	0.00	500.00	
10-410-58 TAX REFUNDS	2,500	0.00	0.00	0.00	2,500.00	
10-410-95 BOARD STIPEND	3,600	0.00	0.00	0.00	3,600.00	
GOVERNING BODY Totals:	240,104	0.00	0.00	14,281.50	225,822.50	6%
10-420-02 SALARIES	397,000	0.00	0.00	28,380.84	368,619.16	7%
10-420-05 FICA (7.65%)	30,371	0.00	0.00	2,165.73	28,204.77	7%

Period Ending 6/30/2023

10 GENERAL FUND

Description	Budget	Encumbrance	MTD	YTD	Variance	Percent
10-420-06 GROUP INSURANCE	42,250	0.00	0.00	0.00	42,250.00	
10-420-07 ORBIT RETIREMENT (12.23%)	48,553	0.00	0.00	3,375.20	45,177.90	7%
10-420-08 401K (3%)	11,910	0.00	0.00	784.06	11,125.94	7%
10-420-09 TOWN INSURANCE HRA	30,000	0.00	0.00	666.75	29,333.25	2%
10-420-10 EMPLOYEE TRAINING	6,000	0.00	0.00	0.00	6,000.00	
10-420-11 POSTAGE	2,500	0.00	0.00	0.00	2,500.00	
10-420-12 MANAGER EXPENSE ACCT	1,000	0.00	0.00	0.00	1,000.00	
10-420-13 TUITION REIMBURSEMENT	2,500	0.00	0.00	0.00	2,500.00	
10-420-15 BANK CHARGES	2,500	0.00	0.00	0.00	2,500.00	
10-420-16 M & R EQUIPMENT	500	0.00	0.00	0.00	500.00	
10-420-17 M & R VECHICLE	1,500	0.00	0.00	0.00	1,500.00	
10-420-18 CONSUMABLES	4,000	0.00	0.00	0.00	4,000.00	
10-420-26 ADVERTISING	1,500	0.00	0.00	0.00	1,500.00	
10-420-31 GAS, OIL & TIRES	2,000	0.00	0.00	0.00	2,000.00	
10-420-33 DEPARTMENT SUPPLIES	6,000	0.00	0.00	161.99	5,838.01	3%
10-420-34 TOWN APPAREL & MERCH EXPENSE	3,000	0.00	0.00	0.00	3,000.00	
10-420-35 IT EQUIPMENT & SERVICES	6,500	0.00	0.00	4,070.22	2,429.78	63%
10-420-45 CONTRACTED SERVICES	26,200	0.00	0.00	1,007.65	25,192.35	4%
10-420-53 DUES & SUBSCRIPTIONS	8,000	0.00	0.00	2,500.00	5,500.00	31%
10-420-57 MISCELLANEOUS	500	0.00	0.00	0.00	500.00	
10-420-58 EMPLOYEE ENGAGEMENT	10,000	0.00	0.00	0.00	10,000.00	
10-420-74 CAPITAL OUTLAY	16,000	0.00	0.00	0.00	16,000.00	
10-420-76 EQUIPMENT LEASE PAYMENTS	27,500	0.00	0.00	832.08	26,667.92	3%
ADMINISTRATION Totals:	687,784	0.00	0.00	43,944.52	643,839.08	6%
10-490-02 SALARIES	92,500	0.00	0.00	6,967.14	85,532.86	8%
10-490-03 PART-TIME SALARIES	15,500	0.00	0.00	1,023.71	14,476.29	7%
10-490-05 FICA (7.65%)	8,262	0.00	0.00	611.29	7,650.71	7%
10-490-06 GROUP INSURANCE	8,500	0.00	0.00	0.00	8,500.00	

Period Ending 6/30/2023

10 GENERAL FUND

Description	Budget	Encumbrance	MTD	YTD	Variance	Percent
10-490-07 ORBIT RETIREMENT (12.23%)	11,313	0.00	0.00	827.69	10,485.06	7%
10-490-08 401K (3%)	2,775	0.00	0.00	209.00	2,566.00	8%
10-490-10 EMPLOYEE TRAINING	3,000	0.00	0.00	0.00	3,000.00	
10-490-16 M & R EQUIPMENT	500	0.00	0.00	0.00	500.00	
10-490-17 M & R VEHICLES	1,000	0.00	0.00	0.00	1,000.00	
10-490-31 GAS, OIL, & TIRES	1,000	0.00	0.00	0.00	1,000.00	
10-490-45 CONTRACTED SERVICES	6,000	0.00	0.00	4,800.00	1,200.00	80%
10-490-53 DUES & SUBSCRIPTIONS	1,650	0.00	0.00	0.00	1,650.00	
10-490-57 MISCELLANEOUS	250	0.00	0.00	0.00	250.00	
10-490-58 CRS FLOOD ACTIVITY	1,400	0.00	0.00	0.00	1,400.00	
PLANNING/ZONING/CAMA Totals:	153,650	0.00	0.00	14,438.83	139,210.92	9%
10-491-02 SALARIES	135,500	0.00	0.00	10,058.98	125,441.02	7%
10-491-05 FICA (7.65%)	10,366	0.00	0.00	757.70	9,608.05	7%
10-491-06 GROUP INSURANCE	17,000	0.00	0.00	0.00	17,000.00	
10-491-07 ORBIT RETIREMENT (12.23%)	16,572	0.00	0.00	1,195.61	15,376.04	7%
10-491-08 401K (3%)	4,065	0.00	0.00	301.77	3,763.23	7%
10-491-10 EMPLOYEE TRAINING	4,500	0.00	0.00	0.00	4,500.00	
10-491-17 M & R VEHICLES	1,200	0.00	0.00	0.00	1,200.00	
10-491-31 GAS, OIL & TIRES	3,000	0.00	0.00	0.00	3,000.00	
10-491-33 DEPARTMENTAL SUPPLIES	1,050	0.00	0.00	0.00	1,050.00	
10-491-45 CONTRACTED SERVICES	10,000	0.00	0.00	4,800.00	5,200.00	48%
10-491-53 DUES & SUBSCRIPTIONS	1,555	0.00	0.00	0.00	1,555.00	
10-491-54 DEMOLITION	135,000	0.00	0.00	0.00	135,000.00	
10-491-57 MISCELLANEOUS	500	0.00	0.00	0.00	500.00	
10-491-75 DEBT SERVICE	10,651	0.00	0.00	0.00	10,651.00	
INSPECTIONS Totals:	350,958	0.00	0.00	17,114.06	333,844.34	5%
10-500-11 PHONES	30,000	0.00	0.00	0.00	30,000.00	
10-500-13 UTILITIES	50,000	0.00	0.00	0.00	50,000.00	
10-500-15 M & R BUILDINGS/GROUNDS	47,000	0.00	0.00	2,580.00	44,420.00	5%

Period Ending 6/30/2023

10 GENERAL FUND

Description	Budget	Encumbrance	MTD	YTD	Variance	Percent
10-500-17 LANDSCAPING EXPENSE	7,750	0.00	0.00	0.00	7,750.00	
10-500-33 BUILDING SUPPLIES	6,500	0.00	0.00	0.00	6,500.00	
10-500-35 FURNITURE	7,500	0.00	0.00	0.00	7,500.00	
10-500-43 CLEANING SERVICES	7,000	0.00	0.00	250.00	6,750.00	4%
10-500-45 PEST CONTROL	1,500	0.00	0.00	0.00	1,500.00	
10-500-57 TOWN SIGN M & R	5,000	0.00	0.00	0.00	5,000.00	
10-500-58 WEB EOC SERVICE	1,500	0.00	0.00	0.00	1,500.00	
10-500-74 CAPITAL OUTLAY	350,000	0.00	0.00	0.00	350,000.00	
PUBLIC BLDGS Totals:	513,750	0.00	0.00	2,830.00	510,920.00	1%
10-501-09 WORKER'S COMPENSATION	55,000	0.00	0.00	45,044.76	9,955.24	82%
10-501-13 PROPERTY LIABILITY & BONDS	129,000	0.00	0.00	62,056.00	66,944.00	48%
10-501-17 VFIS INSURANCE	22,500	0.00	0.00	22,400.00	100.00	100%
10-501-53 CYBER INSURANCE	26,000	0.00	0.00	13,626.78	12,373.22	52%
10-501-54 FLOOD INSURANCE	45,000	0.00	0.00	0.00	45,000.00	
INSURANCE Totals:	277,500	0.00	0.00	143,127.54	134,372.46	52%
10-509-02 PSA SALARY	15,905	0.00	0.00	1,223.34	14,681.66	8%
10-509-05 FICA (7.65%)	1,220	0.00	0.00	93.58	1,126.42	8%
PSA - RETIRED POLICE OFFICERS Totals:	17,125	0.00	0.00	1,316.92	15,808.08	8%
10-510-02 SALARIES	797,000	0.00	0.00	56,767.92	740,232.08	7%
10-510-03 PART-TIME SALARIES	5,000	0.00	0.00	977.76	4,022.24	20%
10-510-04 OVERTIME	35,000	0.00	0.00	4,742.06	30,257.94	14%
10-510-05 FICA (7.65%)	65,178	0.00	0.00	4,745.92	60,432.08	7%
10-510-06 GROUP INSURANCE	111,000	0.00	0.00	0.00	111,000.00	
10-510-07 ORBIT RETIREMENT (13.04%)	103,200	0.00	0.00	7,630.07	95,569.93	7%
10-510-08 401K (5%)	38,000	0.00	0.00	2,826.89	35,173.11	7%
10-510-09 BEACH PATROL EXPENSE	15,000	0.00	0.00	384.00	14,616.00	3%
10-510-10 EMPLOYEE TRAINING	10,000	0.00	0.00	0.00	10,000.00	
10-510-16 M & R EQUIPMENT	3,500	0.00	0.00	0.00	3,500.00	

Period Ending 6/30/2023

10 GENERAL FUND

Description	Budget	Encumbrance	MTD	YTD	Variance	Percent
10-510-17 M & R VEHICLES	11,000	0.00	0.00	0.00	11,000.00	
10-510-31 GAS,OIL & TIRES	55,000	0.00	0.00	0.00	55,000.00	
10-510-32 OFFICE SUPPLIES	1,000	0.00	0.00	0.00	1,000.00	
10-510-33 DEPARTMENTAL SUPPLIES	5,050	0.00	0.00	0.00	5,050.00	
10-510-36 UNIFORMS	12,000	0.00	0.00	0.00	12,000.00	
10-510-37 BALLISTIC VEST GRANT EXPENSE	4,570	0.00	0.00	0.00	4,570.00	
10-510-47 PROFESSIONAL SERVICES	4,160	0.00	0.00	0.00	4,160.00	
10-510-53 DUES & SUBSCRIPTIONS	21,671	0.00	0.00	864.00	20,807.00	4%
10-510-57 K-9 EXPENSES	2,000	0.00	0.00	0.00	2,000.00	
10-510-60 LESO PROGRAM	5,000	0.00	0.00	0.00	5,000.00	
10-510-73 NON-CAPITAL OUTLAY	17,900	0.00	0.00	0.00	17,900.00	
10-510-74 CAPITAL OUTLAY	75,000	0.00	0.00	0.00	75,000.00	
10-510-75 DEBT SERVICE	35,712	0.00	0.00	0.00	35,712.00	
10-510-76 TAXES & TITLES	2,250	0.00	0.00	0.00	2,250.00	
POLICE Totals:	1,435,191	0.00	0.00	78,938.62	1,356,252.38	6%
10-545-02 SALARIES	183,500	0.00	0.00	13,574.40	169,925.60	7%
10-545-03 PART-TIME SALARIES	43,000	0.00	0.00	1,719.90	41,280.10	4%
10-545-04 OVERTIME	2,000	0.00	0.00	817.00	1,183.00	41%
10-545-05 FICA (7.65%)	17,480	0.00	0.00	1,232.52	16,247.73	7%
10-545-06 GROUP INSURANCE	34,000	0.00	0.00	0.00	34,000.00	
10-545-07 ORBIT RETIREMENT (12.23%)	27,946	0.00	0.00	1,914.30	26,031.25	7%
10-545-08 401K (3%)	6,855	0.00	0.00	431.74	6,423.26	6%
10-545-14 EMPLOYEE TRAINING	2,500	0.00	0.00	0.00	2,500.00	
10-545-16 M & R EQUIPMENT	20,000	0.00	0.00	0.00	20,000.00	
10-545-17 M & R VEHICLES	15,000	0.00	0.00	0.00	15,000.00	
10-545-31 GAS, OIL & TIRES	20,000	0.00	0.00	0.00	20,000.00	
10-545-32 OFFICE SUPPLIES	500	0.00	0.00	0.00	500.00	
10-545-33 DEPARTMENTAL SUPPLIES	6,000	0.00	0.00	0.00	6,000.00	

Period Ending 6/30/2023

10 GENERAL FUND

Description	Budget	Encumbrance	MTD	YTD	Variance	Percent
10-545-34 MOSQUITO CONTROL EXPENSE	5,000	0.00	0.00	0.00	5,000.00	
10-545-36 UNIFORMS	1,500	0.00	0.00	0.00	1,500.00	
10-545-57 MISCELLANEOUS	100	0.00	0.00	0.00	100.00	
10-545-74 CAPITAL OUTLAY	245,000	0.00	0.00	0.00	245,000.00	
10-545-75 DEBT SERVICE	11,053	0.00	0.00	0.00	11,053.00	
PUBLIC WORKS Totals:	641,434	0.00	0.00	19,689.86	621,743.94	3%
10-560-13 STREET LIGHT EXPENSE	30,000	0.00	0.00	2,426.41	27,573.59	8%
10-560-15 M & R PUBLIC PARKING	25,000	0.00	0.00	0.00	25,000.00	
10-560-33 DEPARTMENTAL SUPPLIES	4,000	0.00	0.00	0.00	4,000.00	
10-560-43 TOWN ENTRANCE SIGNS	2,000	0.00	0.00	0.00	2,000.00	
10-560-73 STREET PAVING & REPAIR	40,000	0.00	0.00	0.00	40,000.00	
10-560-74 CAPITAL OUTLAY	40,000	0.00	0.00	0.00	40,000.00	
STREETS Totals:	141,000	0.00	0.00	2,426.41	138,573.59	2%
10-580-45 SANITATION CONTRACTS	413,969	0.00	0.00	0.00	413,969.36	
10-580-46 TIPPING FEES	70,555	0.00	0.00	0.00	70,555.00	
10-580-47 RECYCLING	30,000	0.00	0.00	0.00	30,000.00	
SANITATION Totals:	514,524	0.00	0.00	0.00	514,524.36	
10-620-12 SNOWFLAKES	12,000	0.00	0.00	0.00	12,000.00	
10-620-14 PARK WELL	1,500	0.00	0.00	0.00	1,500.00	
10-620-15 PARK MAINTENANCE	40,000	0.00	0.00	0.00	40,000.00	
10-620-17 PARK LANDSCAPING	22,250	0.00	0.00	0.00	22,250.00	
10-620-18 M & R BIKE PATH	1,500	0.00	0.00	0.00	1,500.00	
10-620-27 SPECIAL EVENTS	40,000	0.00	0.00	0.00	40,000.00	
10-620-33 PARK SUPPLIES	3,500	0.00	0.00	0.00	3,500.00	
RECREATION Totals:	120,750	0.00	0.00	0.00	120,750.00	
10-690-02 SALARIES	865,500	0.00	0.00	64,363.77	801,136.23	7%
10-690-03 VOL INCENTIVE PAY	2,500	0.00	0.00	0.00	2,500.00	
10-690-04 OVERTIME	40,000	0.00	0.00	4,383.71	35,616.29	11%

Period Ending 6/30/2023

10 GENERAL FUND

Description	Budget	Encumbrance	MTD	YTD	Variance	Percent
10-690-05 FICA (7.65%)	69,462	0.00	0.00	5,178.93	64,283.07	7%
10-690-06 GROUP INSURANCE	143,750	0.00	0.00	0.00	143,750.00	
10-690-07 ORBIT RETIREMENT (12.23%)	110,743	0.00	0.00	8,173.84	102,568.81	7%
10-690-08 401K (3%)	27,165	0.00	0.00	2,028.48	25,136.52	7%
10-690-10 EMPLOYEE TRAINING	5,000	0.00	0.00	0.00	5,000.00	
10-690-16 M & R EQUIPMENT	20,000	0.00	0.00	0.00	20,000.00	
10-690-17 M & R VEHICLES	17,500	0.00	0.00	701.74	16,798.26	4%
10-690-31 GAS, OIL & TIRES	20,000	0.00	0.00	0.00	20,000.00	
10-690-32 OFFICE SUPPLIES	1,500	0.00	0.00	0.00	1,500.00	
10-690-33 DEPARTMENTAL SUPPLIES	45,500	0.00	0.00	0.00	45,500.00	
10-690-34 FIRE FIGHTER PHYSICALS	6,000	0.00	0.00	0.00	6,000.00	
10-690-36 UNIFORMS	8,000	0.00	0.00	0.00	8,000.00	
10-690-53 DUES & SUBSCRIPTIONS	8,500	0.00	0.00	2,400.00	6,100.00	28%
10-690-57 MISCELLANEOUS	250	0.00	0.00	0.00	250.00	
10-690-73 COMUNICATIONS EQUIP	6,000	0.00	0.00	0.00	6,000.00	
10-690-74 CAPITAL OUTLAY	240,000	0.00	0.00	0.00	240,000.00	
FIRE DEPARTMENT Totals:	1,637,370	0.00	0.00	87,230.47	1,550,139.18	5%
10-695-91 PLANNING BOARD EXPENSE	1,000	0.00	0.00	0.00	1,000.00	
10-695-92 BOARD OF ADJUSTMENT EXPENSE	1,000	0.00	0.00	0.00	1,000.00	
COMMITTES Totals:	2,000	0.00	0.00	0.00	2,000.00	
10-720-10 BEACH LOBBIST CONTRACT	0	0.00	0.00	4,333.33	(4,333.33)	
10-720-14 BEACH RELATED MEETINGS & CONFERENCES	0	0.00	0.00	1,100.00	(1,100.00)	
BEACH REN. / DUNE STAB. Totals:	0	0.00	0.00	5,433.33	(5,433.33)	
10-999-01 CONTINGENCY	326,345	0.00	0.00	0.00	326,344.80	
CONTINGENCY Totals:	326,345	0.00	0.00	0.00	326,344.80	
Expenses Totals:	7,059,484	0.00	0.00	430,772.06	6,628,712.30	6%
10 GENERAL FUND Revenues Over/(Under) Expenses:			0.00	(161,678.46)		

Period Ending 6/30/2023

12 CAPITAL IMPROVEMENT FUND

Description		Budget	Encumbrance	MTD	YTD	Variance	Percent
Revenues							
12-301-00 AD VALOREM TAX (.07)		990,423	0.00	0.00	0.00	(990,423.00)	
12-383-00 SALE OF FIXED ASSETS		0	0.00	0.00	6,250.00	6,250.00	
Revenues	Totals:	990,423	0.00	0.00	6,250.00	(984,173.00)	1%
Expenses							
12-750-01 FIRE DEPARTMENT		424,467	0.00	0.00	0.00	424,467.00	
12-750-02 FIRE TRUCK		141,489	0.00	0.00	0.00	141,489.00	
12-750-11 FUTURE CAPITAL IMPROVEMENTS		424,467	0.00	0.00	0.00	424,467.00	
	Totals:	990,423	0.00	0.00	0.00	990,423.00	
Expenses	Totals:	990,423	0.00	0.00	0.00	990,423.00	
12 CAPITAL IMPROVEMENT FUND	Revenues Over/(Under) Expenses:			0.00	6,250.00		

Period Ending 6/30/2023

15 AMERICAN RESCUE PLAN FUNDING

Description	Budget	Encumbrance	MTD	YTD	Variance	Percent
Revenues						
15-305-00 AMERICAN RESCUE PLAN FUNDING	118,396	0.00	0.00	0.00	(118,396.00)	
Revenues Totals:	118,396	0.00	0.00	0.00	(118,396.00)	
Expenses						
15-790-00 AMERICAN RESCUE PLAN	118,396	0.00	0.00	0.00	118,396.00	
Totals:	118,396	0.00	0.00	0.00	118,396.00	
Expenses Totals:	118,396	0.00	0.00	0.00	118,396.00	
15 AMERICAN RESCUE PLAN FUNDING Revenues Over/(Under) Expenses:			0.00	0.00		

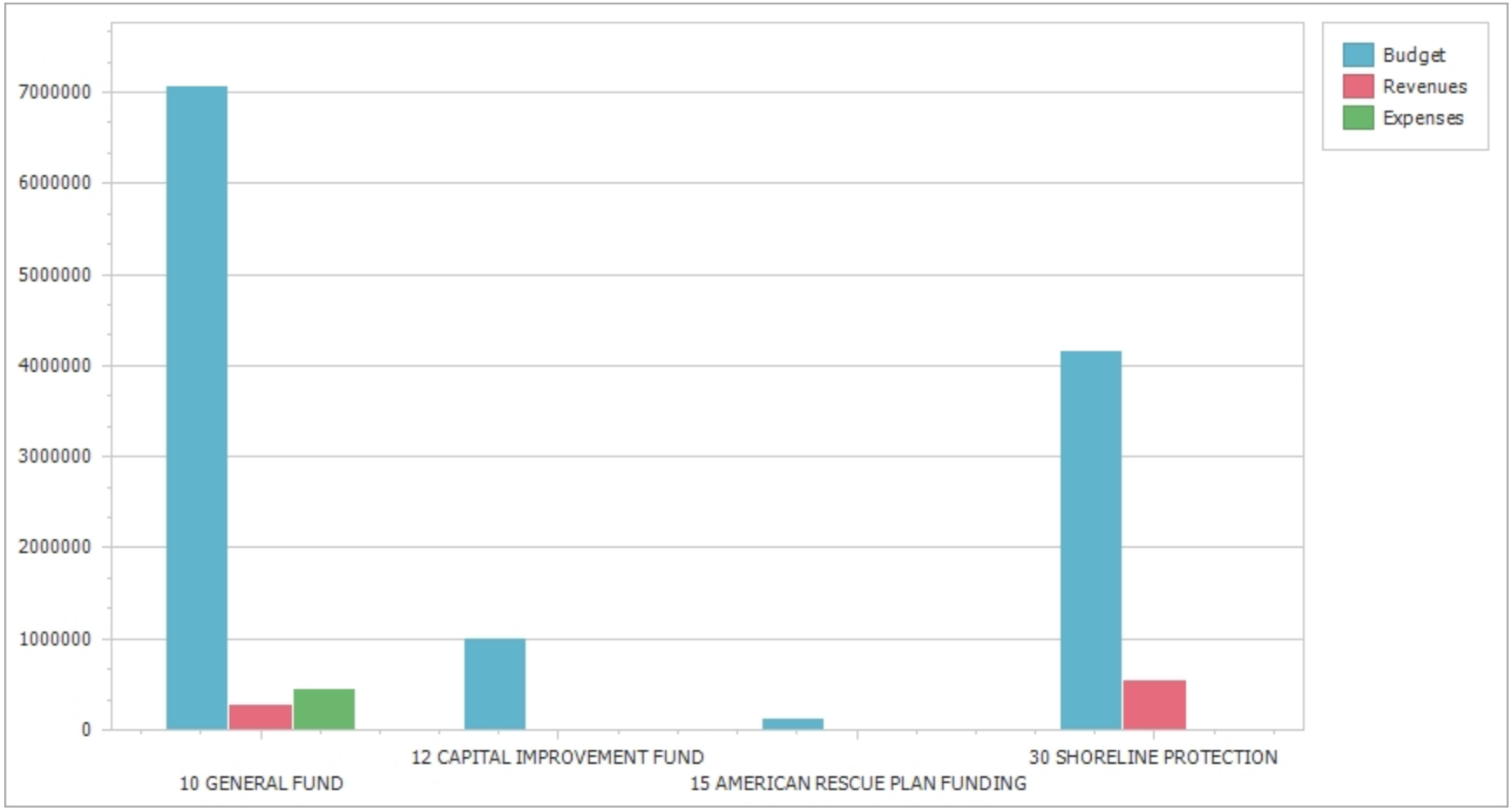
Period Ending 6/30/2023

30 SHORELINE PROTECTION

Description	Budget	Encumbrance	MTD	YTD	Variance	Percent
Revenues						
30-301-00 ACCOMMODATION TAX	1,500,000	0.00	0.00	397,368.77	(1,102,631.23)	26%
30-301-05 AD VALOREM TAX - Beach	1,414,890	0.00	0.00	0.00	(1,414,890.00)	
30-329-00 INTEREST INCOME	1,000	0.00	0.00	0.00	(1,000.00)	
30-336-00 SEA OATS PROGRAM	25,000	0.00	0.00	0.00	(25,000.00)	
30-345-00 LOCAL OPTION SALES TAX	653,873	0.00	0.00	65,630.83	(588,242.17)	10%
30-350-01 PAID PARKING REVENUE	547,500	0.00	0.00	73,875.75	(473,624.25)	13%
30-383-02 SPECIAL ASSESSMENT	7,000	0.00	0.00	0.00	(7,000.00)	
Revenues Totals:	4,149,263	0.00	0.00	536,875.35	(3,612,387.65)	13%
Expenses						
30-710-08 LEASE PAYMENTS	48,000	0.00	0.00	0.00	48,000.00	
30-710-10 BEACH LOBBYIST CONTRACT	60,000	0.00	0.00	0.00	60,000.00	
30-710-12 BEACH/ACCESS MAINTENANCE	50,000	0.00	0.00	500.00	49,500.00	1%
30-710-14 BEACH MEETINGS / CONFERENCES	20,000	0.00	0.00	0.00	20,000.00	
30-710-15 M & R DUNE/CROSSWALK	8,000	0.00	0.00	0.00	8,000.00	
30-710-45 CONTRACTED SERVICES	10,000	0.00	0.00	0.00	10,000.00	
30-710-59 SEA OATS PROGRAM	50,000	0.00	0.00	0.00	50,000.00	
Totals:	246,000	0.00	0.00	500.00	245,500.00	0%
30-720-07 Harden Structure Permit/Design	280,000	0.00	0.00	0.00	280,000.00	
30-720-08 CONTRACTS, PLANS, SPECS	134,000	0.00	0.00	0.00	134,000.00	
30-720-18 OTHER CONTRACTS & PLANS	60,000	0.00	0.00	0.00	60,000.00	
30-720-50 2022B SOB PAYMENT	2,030,484	0.00	0.00	0.00	2,030,484.00	
30-720-60 30 YEAR BEACH PLAN	30,000	0.00	0.00	0.00	30,000.00	
30-720-64 Sandbag Repair Project	200,000	0.00	0.00	0.00	200,000.00	
30-720-68 Future Projects Fund	1,168,779	0.00	0.00	0.00	1,168,779.00	
BEACH REN. / DUNE STAB. Totals:	3,903,263	0.00	0.00	0.00	3,903,263.00	
Expenses Totals:	4,149,263	0.00	0.00	500.00	4,148,763.00	0%

Period Ending 6/30/2023

30 SHORELINE PROTECTION	Revenues Over/(Under) Expenses:	0.00	536,375.35


Budget
Revenues
Expenses
7000000
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0
10 GENERAL FUND
12 CAPITAL IMPROVEMENT FUND
15 AMERICAN RESCUE PLAN FUNDING
30 SHORELINE PROTECTION

NORTH TOPSAIL BEACH
7/22/2022 11:57:31 AM

Period Ending 6/30/2025

31 CAPITAL PROJECT BEACH MAINTENANCE

Description	Budget	Encumbrance	MTD	YTD	Variance	Percent
Revenues						
31-330-00 LOAN PROCEEDS	0	0.00	0.00	4,110,678.96	4,110,678.96	
31-348-08 FEMA REIMBURSEMENT	9,000,000	0.00	0.00	0.00	(9,000,000.00)	
Revenues Totals:	9,000,000	0.00	0.00	4,110,678.96	(4,889,321.04)	46%
Expenses						
31-450-01 ENGINEERING & CONSTRUCTION PHASE SUPPORT	9,000	0.00	0.00	2,035.00	6,965.00	23%
31-450-02 CONSTRUCTION MANAGEMENT & ADMINISTRATION	210,000	0.00	0.00	193,116.25	16,883.75	92%
31-450-03 LABORATORY ANALYSIS	44,400	0.00	0.00	0.00	44,400.00	
31-450-04 REGULATORY COORDINATION & CLOSEOUT	10,000	0.00	0.00	57.50	9,942.50	1%
31-450-05 MOBILIZATION & DEMOBILIZATION	180,000	0.00	0.00	180,000.00	0.00	100%
31-450-06 HAUL & PLACEMENT OF BEACH FILL	8,378,110	0.00	0.00	3,513,480.04	4,864,629.96	42%
31-450-07 PAYMENT & PERFORMANCE BONDS	45,000	0.00	0.00	45,000.00	0.00	100%
31-450-08 PROFESSIONAL FEES	123,490	0.00	0.00	0.00	123,490.00	
Totals:	9,000,000	0.00	0.00	3,933,688.79	5,066,311.21	44%
Expenses Totals:	9,000,000	0.00	0.00	3,933,688.79	5,066,311.21	44%
31 CAPITAL PROJECT BEACH MAINTENANCE Revenues Over/(Under) Expenses:			0.00	176,990.17		

GL Account History Summary

NORTH TOPSAIL BEACH

7/22/2022 11:06 AM

Account Range: 30-301-00 ACCOMMODATION TAX - 30-301-00 ACCOMMODATION TAX

Date Range: 7/1/2022 - 7/22/2022

GL Account - 30-301-00 ACCOMMODATION TAX

Date		Description	Source	Debits	Credits	Date
Fiscal Period - FY 22-23			Beg Balance	$0.00	$1,941,229.28	
07/01/2022	OCC TAX		GL GJ	$0.00	$2,117.14	07/01/2022
07/08/2022	OCC TAX		GL GJ	$0.00	$1,087.95	07/08/2022
07/08/2022	OCC TAX		GL GJ	$0.00	$28,316.01	07/08/2022
07/11/2022	OCC TAX		GL GJ	$0.00	$19,648.54	07/11/2022
07/12/2022	OCC TAX		GL GJ	$0.00	$162.60	07/13/2022
07/13/2022	OCC TAX		GL GJ	$0.00	$615.99	07/15/2022
07/15/2022	OCC TAX		GL GJ	$0.00	$758.77	07/18/2022
07/15/2022	OCC TAX		GL GJ	$0.00	$170,923.54	07/15/2022
07/18/2022	OCC TAX		GL GJ	$0.00	$936.03	07/20/2022
07/19/2022	OCC TAX		GL GJ	$0.00	$2,431.86	07/20/2022
07/19/2022	OCC TAX		GL GJ	$0.00	$170,370.34	07/20/2022
			Transaction Totals	$0.00	$397,368.77	
**			End Balance	$0.00	$397,368.77	**

Check Listing

Date From: 6/30/2022 Date To: 7/22/2022
Vendor Range: A PLUS WAREHOUSE EQUIPMENT & SUPPLY - ZOCKLEIN & ASSOCIATES

NORTH TOPSAIL BEACH
07/22/2022 11:17 AM

Check Number	Bank	Vendor	Date	Amount
46351	1	AT&T MOBILITY	06/30/2022	**$635.38**
46352	1	CAPE FEAR GENERATORS	06/30/2022	**$394.83**
46353	1	GALLS LLC	06/30/2022	**$638.20**
46354	1	JONES ONSLOW ELECTRIC COMPANY	06/30/2022	**$1,668.50**
46355	1	ROMAN TROPHIES	06/30/2022	**$25.89**
46356	1	STEWART COOPER NEWELL	06/30/2022	**$239.03**
46357	1	TI COASTAL SERVICES, INC.	06/30/2022	**$6,000.00**
46358	1	TRUIST BANK	06/30/2022	**$4,103.30**
46359	1	VERIZON WIRELESS	06/30/2022	**$1,057.47**
46360	1	ATLANTIC DISCOUNT STORAGE	07/01/2022	**$2,040.00**
46361	1	NCIUA	07/01/2022	**$15,839.00**
46362	1	APPLIED TECHNOLOGY & MNGMT	07/07/2022	**$8,003.75**
46363	1	CHARTER COMMUNICATIONS	07/07/2022	**$1,024.52**
46364	1	GLASSMAN MICHAEL JAMES	07/07/2022	**$100.59**
46365	1	JAMES & DEBORAH HAMMERSLEY	07/07/2022	**$277.32**
46366	1	JAMES RIGGINS	07/07/2022	**$27.83**
46367	1	LOWE'S HOME CENTERS	07/07/2022	**$1,946.61**
46368	1	NAPA FOUR CORNERS	07/07/2022	**$101.33**
46369	1	NC LICENSING BOARD - GEN. CONTR	07/07/2022	**$342.00**
46370	1	NC PERMITTING PERSONNEL ASSOC	07/07/2022	**$50.00**
46371	1	ONSLOW COUNTY SOLID WASTE DEPT	07/07/2022	**$13,002.27**
46372	1	SONOCO PRODUCTS CO.	07/07/2022	**$1,034.68**
46373	1	ARETE ADVISORS LLC	07/07/2022	**$1,876.25**
46374	1	COMPUTER WARRIORS, INC.	07/07/2022	**$1,007.65**
46375	1	HOHONU INC	07/07/2022	**$500.00**
46376	1	JONES ONSLOW ELECTRIC COMPANY	07/07/2022	**$2,426.41**
46377	1	NC BEACH INLET & WATERWAY ASSO	07/07/2022	**$1,100.00**
46378	1	NC INTERLOCAL RISK MGMT AGENCY	07/07/2022	**$45,044.76**
46379	1	NCIUA	07/07/2022	**$69.00**
46380	1	ONLINE SOLUTIONS, LLC	07/07/2022	**$9,600.00**
46381	1	VFIS OF NORTH CAROLINA	07/07/2022	**$22,400.00**
46382	1	APPLIED TECHNOLOGY & MNGMT	07/14/2022	**$104,04**

Check Listing

Date From: 6/30/2022 Date To: 7/22/2022
Vendor Range: A PLUS WAREHOUSE EQUIPMENT & SUPPLY - ZOCKLEIN & ASSOCIATES

NORTH TOPSAIL BEACH
07/22/2022 11:17 AM

Check Number	Bank	Vendor	Date	Amount
46383	1	BECKER MORGAN GROUP INC	07/14/2022	**$32,041.83**
46384	1	BIG SKY DESIGN, INC.	07/14/2022	**$264.83**
46385	1	DANA SAFETY SUPPLY, INC.	07/14/2022	**$428.00**
46386	1	DIAL CORDY	07/14/2022	**$3,600.00**
46387	1	GFL ENVIRONMENTAL	07/14/2022	**$32,570.85**
46388	1	LOCALIQ	07/14/2022	**$129.40**
46389	1	NC INTERLOCAL RISK MGMT AGENCY	07/14/2022	**$105.07**
46390	1	TESI SCREENING, INC	07/14/2022	**$60.00**
46391	1	CROSSLEY MCINTOSH COLLIER	07/14/2022	**$2,045.00**
46392	1	DATA NETWORK SOLUTIONS INC	07/14/2022	**$2,193.97**
46393	1	ESO	07/14/2022	**$2,400.00**
46394	1	NC LEAGUE OF MUNICIPALITIES	07/14/2022	**$1,757.00**
46395	1	NC STATE BUREAU	07/14/2022	**$864.00**
46396	1	OCEAN CITY JAZZ FESTIVAL	07/14/2022	**$1,000.00**
46397	1	TOWN OF SURF CITY	07/14/2022	**$4,333.33**
46398	1	WELLS INSURANCE	07/14/2022	**$59,774.78**
46399	1	CRAWFORD DOOR SYSTEMS INC	06/30/2022	**$2,246.65**
46400	1	DODSON PEST CONTROL	06/30/2022	**$84.00**
46401	1	FIRST CITIZENS BANK CC	06/30/2022	**$1,446.99**
46402	1	JEFF WALKER	06/30/2022	**$32.50**
46403	1	JONES ONSLOW ELECTRIC COMPANY	06/30/2022	**$2,082.56**
46404	1	KIMBERLY LYNN ALTMAN	06/30/2022	**$350.00**
46405	1	ONSLOW COUNTY FINANCE OFFICE	06/30/2022	**$92.60**
46406	1	ONSLOW WATER & SEWER AUTHORITY	06/30/2022	**$373.28**
46407	1	ADAMS TRUCK REPAIR	07/21/2022	**$750.86**
46408	1	GREATAMERICAN FINANCIAL SERVS	07/21/2022	**$890.34**
46409	1	PEACHY CLEAN	07/21/2022	**$250.00**
46410	1	ROMAN TROPHIES	07/21/2022	**$12.70**
46411	1	SOUTHERN SOFTWARE INC.	07/21/2022	**$2,500.00**
46412	1	STAPLES	07/21/2022	**$159.74**
46413	1	THOMPSON, PRICE, SCOTT, ADAMS & CO, P.A.	07/21/2022	**$6,250.00**
46414	1	UNITED STATES TREASURY	07/21/2022	**$2.51**

Check Listing

Date From: 6/30/2022 Date To: 7/22/2022
Vendor Range: A PLUS WAREHOUSE EQUIPMENT & SUPPLY - ZOCKLEIN & ASSOCIATES

NORTH TOPSAIL BEACH
07/22/2022 11:17 AM

Check Number	Bank	Vendor	Date	Amount
46415	1	WESTBROOK & JARMAN	07/21/2022	**$540.00**
65		Checks Totaling -		**$408,258.61**

Totals By Fund

	Checks	Voids	Total
10	$254,064.78		$254,064.78
12	$32,041.83		$32,041.83
30	$18,199.50		$18,199.50
31	$103,952.50		$103,952.50
Totals:	$408,258.61		$408,258.61

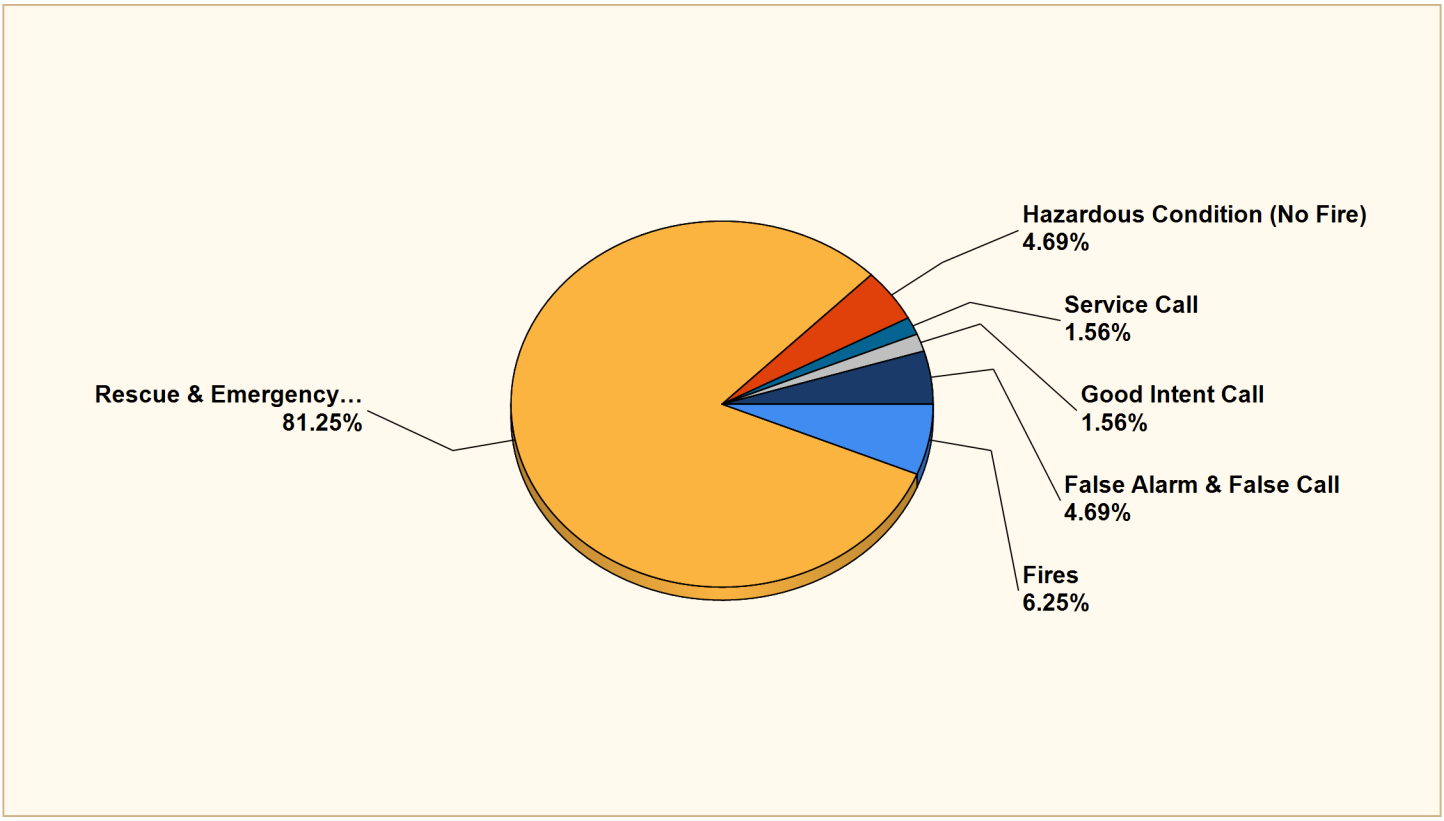
Town of North Topsail Beach Fire Department

North Topsail Beach, NC

This report was generated on 7/20/2022 10:30:31 AM

Breakdown by Major Incident Types for Date Range

Zone(s): All Zones | Start Date: 06/20/2022 | End Date: 07/20/2022



MAJOR INCIDENT TYPE	# INCIDENTS	% of TOTAL
Fires	4	6.25%
Rescue & Emergency Medical Service	52	81.25%
Hazardous Condition (No Fire)	3	4.69%
Service Call	1	1.56%
Good Intent Call	1	1.56%
False Alarm & False Call	3	4.69%
TOTAL	64	100%

Only REVIEWED and/or LOCKED IMPORTED incidents are included. Summary results for a major incident type are not displayed if the count is zero.

Detailed Breakdown by Incident Type		
INCIDENT TYPE	**# INCIDENTS**	**% of TOTAL**
111 - Building fire	2	3.12%
118 - Trash or rubbish fire, contained	1	1.56%
131 - Passenger vehicle fire	1	1.56%
311 - Medical assist, assist EMS crew	34	53.12%
320 - Emergency medical service, other	1	1.56%
322 - Motor vehicle accident with injuries	2	3.12%
324 - Motor vehicle accident with no injuries.	3	4.69%
331 - Lock-in (if lock out , use 511)	1	1.56%
341 - Search for person on land	1	1.56%
342 - Search for person in water	1	1.56%
353 - Removal of victim(s) from stalled elevator	1	1.56%
364 - Surf rescue	4	6.25%
365 - Watercraft rescue	4	6.25%
412 - Gas leak (natural gas or LPG)	1	1.56%
444 - Power line down	1	1.56%
445 - Arcing, shorted electrical equipment	1	1.56%
500 - Service Call, other	1	1.56%
600 - Good intent call, other	1	1.56%
743 - Smoke detector activation, no fire - unintentional	3	4.69%
TOTAL INCIDENTS:	**64**	**100%**

Only REVIEWED and/or LOCKED IMPORTED incidents are included. Summary results for a major incident type are not displayed if the count is zero.

Permits Issued List

From Date: 06/17/2022
To Date: 07/14/2022

Permit Type	Sub Type	Permit#	Address	Issue Date	Permit Fee
Beach Access Application	Beach Access Application	BAA22-000006	1928 New River Inlet RD	06/22/2022	200.00
Beach Access Application Total	**Beach Access Application Total**			1	200.00
Beach Access Application Total				1	200.00
Dock/Bulkhead/Retaining Wall Permit	Dock	DBR22-000005	104 GRANT DR	07/11/2022	200.00
Dock/Bulkhead/Retaining Wall Permit	Dock	DBR22-000004	104 OCEAN CLUB CT	06/29/2022	200.00
Dock/Bulkhead/Retaining Wall Permit	Dock	DBR22-000006	51 SAILVIEW DR	06/30/2022	275.00
Dock/Bulkhead/Retaining Wall Permit Total	**Dock Total**			3	675.00
Dock/Bulkhead/Retaining Wall Permit Total				3	675.00
Driveway Permit	Driveway Permit	DVW22-000042	1111 NEW RIVER INLET RD	07/06/2022	0.00
Driveway Permit	Driveway Permit	DVW22-000039	4270 ISLAND DR	07/06/2022	0.00
Driveway Permit	Driveway Permit	DVW22-000040	1955 NEW RIVER INLET RD	06/27/2022	0.00
Driveway Permit	Driveway Permit	DVW22-000034	4400 ISLAND DR	06/23/2022	0.00
Driveway Permit Total	**Driveway Permit Total**			4	0.00
Driveway Permit Total				4	0.00
Electrical Permit	Residential	E22-000224	302 HAVEN DR	07/05/2022	75.00
Electrical Permit	Residential	E22-000227	206A GOLDSBORO DR	07/08/2022	75.00
Electrical Permit	Residential	E22-000225	51 SAILVIEW DR	06/30/2022	0.00
Electrical Permit	Residential	E22-000221	1302 NEW RIVER INLET RD	06/21/2022	75.00
Electrical Permit	Residential	E22-000228	3966 ISLAND DR	07/12/2022	75.00

Electrical Permit	Residential	E22-000229	3972 ISLAND DR	07/1	
Electrical Permit	Residential	E22-000230	205 PINELLAS BAY DR	07/12/2022	75.00
Electrical Permit	Residential	E22-000231	1822 NEW RIVER INLET RD 1304	07/14/2022	75.00
Electrical Permit	Residential	E22-000193	15 OSPREY DR	07/13/2022	0.00
Electrical Permit	Residential	E22-000199	4400 ISLAND DR	06/23/2022	0.00
Electrical Permit	Residential	E21-000123	31 OSPREY DR	06/24/2022	0.00
Electrical Permit	Residential	E22-000156	4432 ISLAND DR	06/24/2022	75.00
Electrical Permit	Residential	E22-000172	694 NEW RIVER INLET RD	07/01/2022	0.00
Electrical Permit	Residential	E22-000174	32 PORPOISE PL	07/05/2022	0.00
Electrical Permit	Residential	E22-000183	1128 NEW RIVER INLET RD	06/17/2022	0.00
Electrical Permit	Residential	E22-000212	1955 NEW RIVER INLET RD	06/27/2022	0.00
Electrical Permit	Residential	E22-000203	1753 NEW RIVER INLET RD	06/23/2022	0.00
Electrical Permit	Residential	E22-000204	108 BARTON BAY CT	07/01/2022	0.00
Electrical Permit	Residential	E22-000205	4270 ISLAND DR	07/06/2022	0.00
Electrical Permit	Residential	E22-000216	4021 ISLAND DR Lot 99 CAROLINA ST	06/29/2022	75.00
Electrical Permit	Residential	E22-000214	1111 NEW RIVER INLET RD	07/06/2022	0.00
Electrical Permit	Residential	E22-000218	ISLAND DR Ocean Ridge Pool House	06/17/2022	75.00
Electrical Permit Total	**Residential Total**			22	750.00
Electrical Permit Total				22	750.00
Fuel Gas Permit	Residential	FG22-000012	32 PORPOISE PL	07/05/2022	0.00

Fuel Gas Permit Total	**Residential Total**			1	
Fuel Gas Permit Total				1	0.00
Insulation Permit	Residential	I22-000031	4400 ISLAND DR	06/23/2022	0.00
Insulation Permit	Residential	I22-000036	1111 NEW RIVER INLET RD	07/06/2022	0.00
Insulation Permit	Residential	I22-000033	4270 ISLAND DR	07/06/2022	0.00
Insulation Permit	Residential	I22-000035	1955 NEW RIVER INLET RD	06/27/2022	0.00
Insulation Permit Total	**Residential Total**			4	0.00
Insulation Permit Total				4	0.00
Mechanical Permit	Residential	M22-000166	7003 11TH AVE	07/13/2022	75.00
Mechanical Permit	Residential	M22-000167	3940 ISLAND DR	07/13/2022	75.00
Mechanical Permit	Residential	M22-000168	2055 NEW RIVER INLET RD	07/13/2022	75.00
Mechanical Permit	Residential	M22-000169	7110 11TH AVE	07/13/2022	75.00
Mechanical Permit	Residential	M22-000170	3802 ISLAND DR	07/13/2022	75.00
Mechanical Permit	Residential	M22-000154	3992 ISLAND DR	06/27/2022	75.00
Mechanical Permit	Residential	M22-000155	104 CHESTNUT ST	06/24/2022	75.00
Mechanical Permit	Residential	M22-000160	634 HAMPTON COLONY CIR	07/01/2022	75.00
Mechanical Permit	Residential	M22-000161	6412 14TH AVE	07/05/2022	75.00
Mechanical Permit	Residential	M22-000162	2000 NEW RIVER INLET RD 3107	07/06/2022	75.00
Mechanical Permit	Residential	M22-000164	104 BAY CT	07/12/2022	75.00
Mechanical Permit	Residential	M22-000165	460 NEW RIVER INLET RD	07/12/2022	75.00
Mechanical Permit	Residential	M22-000141	1955 NEW RIVER INLET RD	06/27/2022	0.00
Mechanical Permit	Residential	M22-	4270 ISLAND DR	07/06/2022	

		000130			
Mechanical Permit	Residential	M22-000142	1111 NEW RIVER INLET RD	07/06/2022	0.00
Mechanical Permit	Residential	M22-000146	3814 ISLAND DR	06/17/2022	75.00
Mechanical Permit	Residential	M22-000147	6915 12TH AVE	06/17/2022	75.00
Mechanical Permit	Residential	M22-000148	8203 5TH AVE	06/17/2022	75.00
Mechanical Permit	Residential	M22-000149	3739 ISLAND DR	06/22/2022	75.00
Mechanical Permit	Residential	M22-000151	1214 NEW RIVER INLET RD	06/20/2022	75.00
Mechanical Permit	Residential	M22-000152	4464 ISLAND DR	06/20/2022	75.00
Mechanical Permit	Residential	M22-000121	4400 ISLAND DR	06/23/2022	0.00
Mechanical Permit	Residential	M22-000107	205-B SEA SHORE DR	06/22/2022	75.00
Mechanical Permit	Residential	M22-000123	2343 NEW RIVER INLET RD	07/08/2022	75.00
Mechanical Permit	Residential	M22-000124	230 TOPSAIL RD	06/22/2022	75.00
Mechanical Permit	Residential	M22-000115	1278 NEW RIVER INLET RD	06/22/2022	75.00
Mechanical Permit	Residential	M22-000103	1896 NEW RIVER INLET RD 1110	06/22/2022	75.00
Mechanical Permit	Residential	M22-000095	302 MARINA WAY	06/22/2022	75.00
Mechanical Permit	Residential	M22-000041	4 SAILVIEW DR	07/11/2022	75.00
Mechanical Permit	Residential	M22-000007	203 SANDPIPER DR	07/11/2022	75.00
Mechanical Permit	Residential	M21-000046	3091 Island DR	06/21/2022	0.00
Mechanical Permit	Residential	M21-000049	2000 NEW RIVER INLET RD UC271	06/22/2022	75.00
Mechanical Permit Total	**Residential Total**			32	

Mechanical Permit Total				32	
New Construction Permit	Single Family	C22-000031	1111 NEW RIVER INLET RD	07/06/2022	1,569.48
New Construction Permit	Single Family	C22-000030	1955 NEW RIVER INLET RD	06/27/2022	1,747.71
New Construction Permit	Single Family	C22-000027	4400 ISLAND DR	06/23/2022	1,495.71
New Construction Permit	Single Family	C22-000029	4270 ISLAND DR	07/06/2022	2,349.63
New Construction Permit Total	**Single Family Total**			4	7,162.53
New Construction Permit Total				4	7,162.53
Plumbing Permit	Residential	P22-000045	4270 ISLAND DR	07/06/2022	0.00
Plumbing Permit	Residential	P22-000047	1955 NEW RIVER INLET RD	06/27/2022	0.00
Plumbing Permit	Residential	P22-000048	1111 NEW RIVER INLET RD	07/06/2022	0.00
Plumbing Permit	Residential	P22-000042	4400 ISLAND DR	06/23/2022	0.00
Plumbing Permit Total	**Residential Total**			4	0.00
Plumbing Permit Total				4	0.00
Sign Permit	Ground Sign	S22-000001	1148 NEW RIVER INLET RD	07/05/2022	50.00
Sign Permit Total	**Ground Sign Total**			1	50.00
Sign Permit Total				1	50.00
Simple Build Permit	Single Family	SB22-000059	756 NEW RIVER INLET RD	06/27/2022	75.00
Simple Build Permit	Single Family	SB22-000019	106 N PERMUDA WYND	07/13/2022	200.00
Simple Build Permit	Single Family	SB22-000034	213 COASTAL DR	07/12/2022	200.00
Simple Build Permit	Single Family	SB22-000055	1128 NEW RIVER INLET RD	06/17/2022	275.00
Simple Build Permit	Single Family	SB22-000054	32 PORPOISE PL	07/05/2022	225.00
Simple Build Permit Total	**Single Family Total**			5	975.00
Simple Build Permit Total				5	975.00
Subdivision and Site Plan Application	Exemption	SPA22-000011	124 OLD VILLAGE LN	06/22/2022	50.00

Subdivision and Site Plan Application Total	**Exemption Total**			1	
Subdivision and Site Plan Application Total				1	50.00
Swimming Pool Permit	Residential	SP22-000011	694 NEW RIVER INLET RD	07/01/2022	305.00
Swimming Pool Permit	Residential	SP22-000003	1753 NEW RIVER INLET RD	06/23/2022	305.00
Swimming Pool Permit	Residential	SP22-000014	108 BARTON BAY CT	07/01/2022	305.00
Swimming Pool Permit	Residential	SP22-000019	4432 ISLAND DR	06/27/2022	230.00
Swimming Pool Permit Total	**Residential Total**			4	1,145.00
Swimming Pool Permit Total				4	1,145.00
Zoning and Floodplain Development Permit	Residential	ZFP22-000127	51 SAILVIEW DR	06/30/2022	0.00
Zoning and Floodplain Development Permit	Residential	ZFP22-000124	104 GRANT DR	07/11/2022	0.00
Zoning and Floodplain Development Permit	Residential	ZFP22-000100	1753 NEW RIVER INLET RD	06/23/2022	0.00
Zoning and Floodplain Development Permit	Residential	ZFP22-000088	694 NEW RIVER INLET RD	07/01/2022	0.00
Zoning and Floodplain Development Permit	Residential	ZFP22-000097	4432 ISLAND DR	06/27/2022	0.00
Zoning and Floodplain Development Permit	Residential	ZFP22-000087	108 BARTON BAY CT	07/01/2022	0.00
Zoning and Floodplain Development Permit	Residential	ZFP22-000045	213 COASTAL DR	07/12/2022	0.00
Zoning and Floodplain Development Permit	Residential	ZFP22-000073	1128 NEW RIVER INLET RD	06/17/2022	0.00
Zoning and Floodplain Development Permit	Residential	ZFP22-000080	4400 ISLAND DR	06/23/2022	0.00
Zoning and Floodplain Development Permit	Residential	ZFP22-000116	104 OCEAN CLUB CT	06/29/2022	0.00
Zoning and Floodplain Development Permit	Residential	ZFP22-000111	1111 NEW RIVER INLET RD	07/06/2022	0.00
Zoning and Floodplain Development Permit	Residential	ZFP22-000105	106 N PERMUDA WYND	07/13/2022	0.00
Zoning and Floodplain Development	Residential	ZFP22-	1955 NEW RIVER INLET	06/27/2022	0.00

Permit		000106	RD		
Zoning and Floodplain Development Permit	Residential	ZFP22-000102	4270 ISLAND DR	07/06/2022	0.00
Zoning and Floodplain Development Permit Total	**Residential Total**			14	0.00
Zoning and Floodplain Development Permit Total				14	0.00
All Permits Total				100	13,032.53

From: 06/17/2022
To: 07/28/2022

Permit#	Issue Date	Address	Property#	Legal Description	Property Owner	Contractor	Building Final	CO Issued	Cost	Receipt#	Estimated Value	Recovery Fund	Technology Fee
ZFP22-000073	06/17/2022	1128 NEW RIVER INLET RD	774G-61	L2 OCEAN VIEW SHORES	DAGHSTANI MATT G & M SAMIR AYASSO	CMS & Co. - Wayne Lamm			125.00		21000.00	0.00	0.00
ZFP22-000080	06/23/2022	4400 ISLAND DR	768A-11	L11 SUMMERTYME	GOLDSAND COREY & LISA	Carolina Coast Contracting Corp. - Jackie L James			125.00		701698.32	0.00	0.00
ZFP22-000100	06/23/2022	1753 NEW RIVER INLET RD	779-9	L3	SCHWEND MICHAEL T & MARY JO TRUSTEES	Master Pools of Wilmington - (Frederick) Todd Bishton			125.00		69900.00	0.00	0.00
ZFP22-000097	06/27/2022	4432 ISLAND DR	768A-38.2	L24 SUMMERTYME	RET HOLDINGS LLC	RedRock Restoration & Construction LLC - Jo Schmuker			125.00		2500.00	0.00	0.00
ZFP22-000106	06/27/2022	1955 NEW RIVER INLET RD	779D-25	L25 B3 BAYVIEW	WARD CONSTRUCTION INC	Ward Construction, Inc. - Richard Dail Ward			125.00		400000.00	0.00	0.00
ZFP22-000116	06/29/2022	104 OCEAN CLUB CT	775B-73	L18 OCEAN CLUB VILLAGE	WINTERS DOUGLAS C & ERIN	PFL Construction LLC - Joshua Barber			125.00		29800.00	0.00	0.00
ZFP22-000127	06/30/2022	51 SAILVIEW DR	775C-27	L51 S1 CAPE ISLAND	TOPSAIL BEACH LEGACY LLC	TOPSAIL BEACH LEGACY LLC			125.00		25000.00	0.00	0.00
ZFP22-000087	07/01/2022	108 BARTON BAY CT	779A-38	L8 BARTON BAY YACHT CLUB	HARTMAN ANTHONY E & KAREN L	A'N'A Builders, Inc - Michael Afify			125.00		56000.00	0.00	0.00
ZFP22-000088	07/01/2022	694 NEW RIVER INLET RD	775B-16	L16 SEA DUNES VILLAGE	ERNEST SHANE L & MICHELLE F EBLE	A'N'A Builders, Inc - Michael Afify			125.00		62000.00	0.00	0.00
ZFP22-000102	07/06/2022	4270 ISLAND DR	768A-162	L24 S3 OCEAN RIDGE VILLAGE	CAPITAL ASSET TOPSAIL DEVELOPMENT LLC	Capital Asset Topsail Development, LLC - Garrett Ottaway			125.00		650000.00	0.00	0.00
ZFP22-000111	07/06/2022	1111 NEW RIVER INLET RD	774G-62	L9 OCEAN VIEW SHORES	CAPITAL ASSET TOPSAIL DEVELOPMENT LLC	Capital Asset Topsail Development, LLC - Garrett Ottaway			125.00		500000.00	0.00	0.00
ZFP22-000124	07/11/2022	104 GRANT DR	778D-68	L1 DOLPHIN SHORES	MCNAMEE SCOTT P & DIANE F	Saltwater Marine Construction Unlimited Inc,TVA Saltwater Marine - Jeffrey			125.00		35000.00	0.00	0.00
ZFP22-000045	07/12/2022	213 COASTAL DR	778C-91	L10A S3 BE NORTH TOPSAIL SHORES	TRESCHUK TIMOTHY M & JEANNE A	TRESCHUK TIMOTHY M & JEANNE A			125.00		2000.00	0.00	0.00
ZFP22-	07/13/2022	106 N PERMUDA	806-59	L26 S1 VILLAGE OF	SHUSTER THOMAS A &	Mike's General			125.00		17500.00	0.00	0.00

000105		WYND		STUMP SOUND	LAURA ROSE	Contracting Services - michael coscia							
ZFP22-000114	07/15/2022	104 SCOTCH BONNET DR	804A-23	L7 SCOTCH BONNET O/S	HOWARD STEPHEN SCOTT TRUSTEE	Beachside Custom Homes, LLC - William Lenfestey			125.00		1600000.00	0.00	0.00
ZFP22-000107	07/26/2022	3600 ISLAND DR	814-12.4	L3 M F BOSTIC	TI ENDEAVORS LLC	A'N'A Builders, Inc - Michael Afify			125.00		62000.00	0.00	0.00
ZFP22-000047	07/27/2022	2757 ISLAND DR	807-102	L14 B24 OCEAN CITY	BAILEY EVESTER B & BRENDA B	J & M MARX POOLS, LLC - Joel Marx			125.00		52124.00	0.00	0.00
ZFP22-000099	07/28/2022	1511 NEW RIVER INLET RD	779H-6	L6 THE SANCTUARY	HOWINGTON BUILDING GROUP LLC	Prestige Building Group LLC - Michael Sr J Howington			125.00		700000.00	0.00	0.00
DVW22-000034	06/23/2022	4400 ISLAND DR	768A-11	L11 SUMMERTYME	GOLDSAND COREY & LISA	Carolina Coast Contracting Corp. - Jackie L James			50.00		2700.00	0.00	0.00
DVW22-000040	06/27/2022	1955 NEW RIVER INLET RD	779D-25	L25 B3 BAYVIEW	WARD CONSTRUCTION INC	Ward Construction, Inc. - Richard Dail Ward			50.00		10000.00	0.00	0.00
DVW22-000039	07/06/2022	4270 ISLAND DR	768A-162	L24 S3 OCEAN RIDGE VILLAGE	CAPITAL ASSET TOPSAIL DEVELOPMENT LLC	Capital Asset Topsail Development, LLC - Garrett Ottaway			50.00		20000.00	0.00	0.00
DVW22-000042	07/06/2022	1111 NEW RIVER INLET RD	774G-62	L9 OCEAN VIEW SHORES	CAPITAL ASSET TOPSAIL DEVELOPMENT LLC	Capital Asset Topsail Development, LLC - Garrett Ottaway			50.00		10000.00	0.00	0.00
DVW22-000043	07/15/2022	104 SCOTCH BONNET DR	804A-23	L7 SCOTCH BONNET O/S	HOWARD STEPHEN SCOTT TRUSTEE	Beachside Custom Homes, LLC - William Lenfestey			50.00		1600000.00	0.00	0.00
DVW22-000038	07/28/2022	1511 NEW RIVER INLET RD	779H-6	L6 THE SANCTUARY	HOWINGTON BUILDING GROUP LLC	Prestige Building Group LLC - Michael Sr J Howington			50.00		10000.00	0.00	0.00
SPA22-000011	06/22/2022	124 OLD VILLAGE LN	806-154	L54 S2 VILLAGE OF STUMP SOUND	R & J ASSOCIATES INC				50.00	377	0.00	0.00	0.00

POLICE
NORTH TOPSAIL BEACH

Chief William K. Younginer

Department Report for June 1, 2022 - June 30, 2022

Arrests

Assault	**2**
DWI	**1**
Narcotics	**2**
Traffic	**29**
Warrant Service	**7**

NC Traffic Stop Reports

State Citations	**55**
Town Citations	**6**
Warning Citations	**23**

Summary

TOTAL CALLS FOR SERVICE	**223**
TOTAL CITATIONS ISSUED	**84**
TOTAL REPORTS	**137**
TOTAL SECURITY CHECKS	**1,146**

Calls for Service

Accidents	**7**
Alarms	**4**
Animal Calls	**1**
Behavorial Health	**1**
Cit / Mot / Ped Assists	**50**
Disturbances	**16**
Domestics	**3**
911 Hang Up	**5**
Harassment/Stalking	**1**
Hit & Run	**1**
Injury to Personal Property	**1**
Injury to Real Property	**1**
Larceny	**3**
Misc Calls	**63**
Missing Person	**5**
Sexual Assault	**1**
Suspicious Activity	**12**
Trespassing	**2**
Welfare Check	**3**

Assist Other Agencies

E. M. S.	**17**
N.T.B. F.D.	**18**
O. C. S. D.	**6**
S.C.P.D	**1**
S.H.P.	**1**

Town of North Topsail Beach

Board of Aldermen

Agenda Item:	C Agenda
Date:	08 03 2022

Issue:	Planning Board Committee Report Hanna McCloud, Chair
Department:	Planning
Prepared by:	Deborah J. Hill MPA AICP CFM CZO
Presentation:	No

The Planning Board conducted their regular meeting July 14, 2022.

Mr. Richard Fredenburg, LP-Gas Engineer NC Department of Agriculture provided a presentation and answered questions regarding propane tanks. Planning Director Hill explained that Building Inspector Ralph Allen was responsible for the interpretation and enforcement of the NC Building Code in North Topsail Beach and that she was responsible for the interpretation and enforcement of FEMA's NFIP coastal model floodplain regulations, as adopted by the Town in the UDO Floodplain Regulations.

Planning Director Hill discussed Land Use Planning: Balancing Conservation & Development and distributed copies of the CAMA Land Use Plan and invited the Board to review and comment in areas of concern for discussion and improvement.

Planning Director Hill provided updates on the the following:

A. NCDOT Bi-Weekly Meeting July 13th
B. JUMPO TCC Meeting July 14th
C. CRS Recertification August 1, 2022
D. Unified Development Ordinance (code scan)
E. Dark Sky Ordinance
F. Zoning Map Update

Town of North Topsail Beach

Board of Aldermen

Agenda Item:	C Agenda
Date:	08 03 2022

Issue: Board of Adjustment Committee Report
Hanna McCloud, Chair
Department: Planning
Prepared by: Deborah J. Hill MPA AICP CFM CZO
Presentation: No

An evidentiary hearing following quasi-judicial procedures on Wednesday, July 27, 2022, at 3:00 p.m. to hear and decide Case #V-22-02, a variance request by Joseph Powers and wife Lorraine Powers from Unified Development Ordinance Article 5. Dimensional Requirements for minimum lot size in R-10 zoning district to allow for construction of either a single family or duplex at 153 Sea Gull Lane.

Planning Director Hill presented the staff report. The 5,835 square foot Lot 19 was created with the plat NORTH TOPSAIL SHORES BLOCKS B C D E F G AND H PHASE III approved by the Onslow County Planning Board, filed 11/30/1982, and recorded as Map Book 21 Page 176 in the Onslow County Register of Deeds. The property was zoned R-10 according to the West Onslow Beach Official Zoning Map effective January 15, 1982, superseding and replacing the Official Zoning Map put into effect March 18, 1969.

Mr. Charles Riggs, PLS, representing the owners, presented the application.

Adjacent landowner, Mr. Keith M Wilkerson of 149 Sea Gull Lane spoke in opposition of the application.

By a vote of 4 to 0, Mrs. Swantek, Mrs. McCloud, Mr. Kuegel and Mrs. Meyer voted to grant the variance request.

Planning Director Hill introduced court reporter Mrs. Kim Altman and invited her to explain the process and importance of a certified legal transcript to the Board members, which Mrs. Altman did.

Planning Director Hill discussed the sections of the Rules of Procedure with NCGS 160D updates and stated the draft will be presented at the Board's next meeting.

TOWN OF NORTH TOPSAIL BEACH
Board of Aldermen
Agenda Item

Consent Agenda Item:	**VIII D**
Date:	**08/03/2022**

Issue: MOTV Tax Refund
Department: Finance
Presented by: Caitlin Elliott, Finance Officer
Presentation: Administration Department

Background: Received notice from the Onslow County Tax Office regarding the following MOTV Tax Refunds for the following residents due to tag surrenders:

- Brenda & James McCannon $21.70

Total: **$21.70**

Attachment(s): Onslow County MOTV Tax Report

Recommendation: Approve refund as recommended

Action Needed: Yes

Suggested Motion: *"I, _____ make a motion for the Finance Department to proceed with processing the following tax refund(s) as reported.*

Funds: 10

Follow Up: Finance Officer

primary_owner	secondary_owner	Address_1	Refund_Type	Bill_Num
MCCANNON, JAMES GUILFRED	MCCANNON, BRENDA HEDRICK	196 SHAGBARK DR, SUMMERFIELD, NC 27358	Proration	29820424

PlateNum	Refund_Description	Refund_Reason	RefundAmount
BT54228	Refund Generated due to proration on Bill #0029820424-2021	Tag Surrender	$ (21.70)

TOWN OF NORTH TOPSAIL BEACH
Board of Aldermen
Agenda Item

Consent Agenda Item:	**Ite VIII F**
Date:	08/03/2022

Issue: Budget Amendment 2022-23.1-2
Department: Administration
Presented by: Caitlin Elliott, Finance Officer
Presentation: Finance Department

Background: The Town applied for grant monies through Onslow County this past spring. We requested $200,000 to go towards our USDA Special Obligation Bond (SOB) payment as well as $10,000 to go towards Ocean City Initiatives. Beginning of July, we were approved for $150,000 which again, will go towards the annual SOB payment, as well as $10,000 for Ocean City projects. Attached are the signed contracts executed with the County. Grant monies with the County are disbursed upon submittal of proof of payment. This amendment will properly allocate these funds.

Attachments: Budget Amendment 2022-23.1-2, County Contracts for Awarded Grants

Recommendation: Approve Amendment as recommended

Action Needed: Yes

Suggested Motion: *"I, _____ make a motion to approve Budget Amendment 2022-23.1-2 as presented."*

Funds: 10 and 30

Follow Up: Finance Officer

NON-PROFIT AGENCY
CAPITAL GRANT
CONTRACT

NORTH CAROLINA
ONSLOW COUNTY

This AGREEMENT made and entered into this 29th day of June 2022, by and between Onslow County, North Carolina, hereinafter referred to as the "COUNTY", and Town of North Topsail Beach, hereinafter referred to as the "AGENCY".

WITNESSETH:

WHEREAS, the AGENCY has requested certain funds from the COUNTY to carry out its programs and activities as presented in the application for Non-Profit Agency & Tourism Capital Grant and

WHEREAS, in response to such request, the Board of County Commissioners has appropriated the sum of $10,000 for the period July 1, 2022 through June 30, 2023 to support this purpose; said sum being derived from County funds, pass through grant funds or both; and

WHEREAS, it is desirable and necessary to enter into this AGREEMENT in order to set forth the terms and conditions for receiving said funds from the COUNTY.

NOW THEREFORE, in consideration of the following, the parties hereto do mutually agree as follows:

1. AGENCY agrees and understands that the amounts appropriated by the Board of County Commissioners may change at any time and therefore COUNTY is not obligated to provide to the AGENCY all or any of the funds set forth in this AGREEMENT.

2. The AGENCY agrees to use the funds appropriated and provided by the COUNTY in the manner and for the purposes as stated on the Grant forms submitted to the COUNTY or as otherwise approved by the County, which are incorporated by reference into this AGREEMENT.

3. In consideration for the performance by the AGENCY of the services outlined on its Grant forms, which are hereby incorporated by reference, the COUNTY agrees to pay the AGENCY up to the amount of money authorized in the Onslow County Budget, as may be amended from time to time, for the grant period. Payment of such amount shall be made in increments and frequency solely determined by the COUNTY. Payments will only be made upon receipt of all necessary documentation from the AGENCY including financial or audit reports for the prior year. While not required of the COUNTY, the COUNTY seeks to make any payments on the following schedule:

    a. Payment of the amount appropriated for the agency may be made on a quarterly basis if the funding level is $20,000 or more.
    b. If the funding level is less than $20,000 funds may be paid in a single disbursement within the fiscal year.
    c. The agency must submit a completed Request for Disbursement form, along with copies of paid invoices/receipts to receive payment. The COUNTY will not reimburse sales tax paid, purchases of gifts/gift cards, gratuities, or alcoholic beverages. All receipts must be itemized.
    d. Failure of the agency to file timely the necessary financial or audit reports for the prior year may have their funds held until the requirement is met.

4. If the AGENCY fails to perform its obligations under this AGREEMENT, or if the A violates any of the provisions of this AGREEMENT, the COUNTY shall have the right to immediately terminate this Agreement by giving written notice to the AGENCY of such termination. In such event, all funds paid to the AGENCY for that quarter shall be refunded pro rata to the COUNTY. The AGENCY shall be fully liable to the COUNTY for all improperly expended funds. The COUNTY may additionally terminate this AGREEMENT without cause upon thirty (30) days advance notice to the AGENCY.

5. (Pass-Through Grant) If the AGREEMENT terminated by the COUNTY involves funds related to a pass-through grant(s), all unexpended funds at the time of such termination shall be properly repaid to the COUNTY. The AGENCY shall be fully liable to the COUNTY for all improperly expended funds in the same amount, as the COUNTY is found liable for repayment by the granting AGENCY.

6. The AGENCY shall not assign any interest in this AGREEMENT and shall not transfer any interest in this AGREEMENT without prior written approval of the COUNTY.

7. In connection with the performance of this AGREEMENT, the AGENCY shall not discriminate against any employee, applicant for employment, or program participant because of race, religion, color, sex, age, handicap, or national origin.

8. The AGENCY shall maintain all accounts, books, ledgers, journals, and records in accordance with generally accepted accounting principles, practices and procedures.

9. The AGENCY must establish and provide to the COUNTY criteria that will be used in monitoring the accomplishment of established goals and objectives along with any performance measures.

10. The AGENCY shall submit to the Onslow County Finance Office annually a status report of all program activities including a summary of the accomplishment of stated goals and objectives.

11. Agency annual financial reporting:

    Unless otherwise approved in writing by the County Finance Officer the following annual reports are required:

    a. If COUNTY funding exceeds $50,000 the AGENCY shall have an audit of its financial records and operations performed by an independent certified public accountant every three years and financial report compilation every other year (year 1-compilation, year-2 compilation, year 3-audit) with a copy of such compilations and audit being submitted to the Onslow County Finance Office.
    b. If COUNTY funding is $50,000 or less the AGENCY shall provide an annual financial report compilation completed by an independent accountant, detailing expenditure of COUNTY funds.
    c. If COUNTY funding is $10,000 or less the AGENCY will provide an annual financial review completed by an independent accountant.
    d. Financial reports shall be approved by the AGENCY's Board of Directors.
    e. The audit or financial report shall be submitted to the COUNTY by November 30 of each fiscal year.
    f. The COUNTY shall be entitled to audit/review the financial records and operations of the AGENCY at the COUNTY's discretion.

12. Sales taxes are not eligible for reimbursement or applied against any grant funds. As a non-profit agency you are responsible to file with the State of North Carolina for any sales taxes paid for which you are due a refund.

13. The COUNTY shall be entitled to conduct program evaluations of the AGENCY's a particularly as it relates to the accomplishments of established goals and objectives and the quality and impact of services being delivered.

14. All books and records shall be maintained by the AGENCY for a period of at least three years from the date of the final payment under this AGREEMENT and shall be made available for audit or evaluation upon request during regular business hours of the AGENCY.

15. Meetings of the AGENCY's Board of Directors, Advisory Board or Governing Board must be open to the public. Notices of such meetings shall be provided to the Board of Commissioners and the County Clerk.

16. As a condition of receiving funds from Onslow County, the AGENCY agrees to fully indemnify and hold harmless Onslow County, its officers, agents and employees from and against any and all claims, demands, payments, suits, actions, costs, recoveries and judgments of every kind and description brought out of or occurring in connection with, directly or indirectly, activities funded in part or in whole with funds made available under this AGREEMENT.

17. The COUNTY is in no way responsible for the administration and supervision of the AGENCY's officers, employees, and agents, which persons it is agreed are not officers, employees, or agents of the COUNTY.

18. The appropriation of county funds lapses on June 30th. Only expenditures between July 1, 2022 and June 30, 2023 are eligible for reimbursement. Any request for reimbursement of funds must be submitted and received before July 30, 2023.

19. This AGREEMENT may only be amended by written amendments mutually agreed upon by and between the COUNTY and AGENCY.

20. This agreement shall be interpreted in accordance with North Carolina law.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed in their names by their duly authorized officers, their seals to be hereto affixed the day and year first above written.

ATTEST

Chatfman

ONSLOW COUNTY

County Manager

This Agreement has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

County Finance Officer

ATTEST

AGENCY

Chairman of Board

TOWN OF NORTH TOPSAIL BEACH
2008 Loggerhead Court
North Topsail Beach, NC 28460

FISCAL YEAR **2022-2023**

AMENDMENT TO THE BUDGET ORDINANCE

BA 2022-23.1

BE IT ORDAINED by the Governing Board for the Town of North Topsail Beach, North Carolina that the following amendment be made to the annual budget ordinance for the fiscal year ending June 30, 2023:

Section 1: To amend the General Fund appropriations with increases as follows:

DEPARTMENT NO:	ACCOUNT		
620	**OCEAN CITY GRANT EXPENSE**	**$**	**10,000.00**
	Total Expenditures	**$**	**10,000.00**

This amendment will result in an increase to the following departments:

RECREATION

The purpose of this budget amendment is to appropriate funds for grant funding.

Section 2: To amend the General Fund estimated revenues with increases as follows:

317	**COUNTY GRANT FUNDING**	**$**	**10,000.00**
	Total Revenues	**$**	**10,000.00**

The Finance Officer has performed a thorough analysis of the Revenues and has determined that the following changes are recommended to ensure a balanced statement for Fiscal Year 2022-2023

Section 3: Copies of the budget ordinance amendment shall be furnished to the Town Clerk, the Council, the Budget Officer, and the Finance Officer for their direction.

Adopted this 3rd day of August 2022.

Motion made by _____, 2nd by _____

VOTE: ___ FOR ___ AGAINST ___ ABSENT

JOANN MCDERMON**, MAYOR**

CAITLIN ELLIOTT, **FINANCE OFFICER**

ORIGINAL BUDGET	**7/1/2022**	$	7,059,484.00
Budget Amendment **1**	**8/3/2022**	$	10,000.00
New Budget Ordinance for FY 22-23		**$**	**7,069,484.00**

NON-PROFIT AGENCY
TOURISM ASSISTANCE
CONTRACT

NORTH CAROLINA
ONSLOW COUNTY

This AGREEMENT made and entered into this 29th day of June 2022, by and between Onslow County, North Carolina, hereinafter referred to as the "COUNTY", and Town of North Topsail Beach, hereinafter referred to as the "AGENCY".

WITNESSETH:

WHEREAS, the AGENCY has requested certain funds from the COUNTY to carry out its programs and activities as presented in the application for Non-Profit Agency Tourism Assistance Grant and

WHEREAS, in response to such request, the Board of County Commissioners has appropriated the sum of $150,000 for the period July 1, 2022 through June 30, 2023 to support this purpose; said sum being derived from County funds, pass through grant funds or both; and

WHEREAS, it is desirable and necessary to enter into this AGREEMENT in order to set forth the terms and conditions for receiving said funds from the COUNTY.

NOW THEREFORE, in consideration of the following, the parties hereto do mutually agree as follows:

1. AGENCY agrees and understands that the amounts appropriated by the Board of County Commissioners may change at any time and therefore COUNTY is not obligated to provide to the AGENCY all or any of the funds set forth in this AGREEMENT.

2. The AGENCY agrees to use the funds appropriated and provided by the COUNTY in the manner and for the purposes as stated on the Grant forms submitted to the COUNTY or as otherwise approved by the County, which are incorporated by reference into this AGREEMENT.

3. In consideration for the performance by the AGENCY of the services outlined on its Grant forms, which are hereby incorporated by reference, the COUNTY agrees to pay the AGENCY up to the amount of money authorized in the Onslow County Budget, as may be amended from time to time, for the grant period. Payment of such amount shall be made in increments and frequency solely determined by the COUNTY. Payments will only be made upon receipt of all necessary documentation from the AGENCY including financial or audit reports for the prior year. While not required of the COUNTY, the COUNTY seeks to make any payments on the following schedule:

    a. Payment of the amount appropriated for the agency may be made on a quarterly basis if the funding level is $20,000 or more.
    b. If the funding level is less than $20,000 funds may be paid in a single disbursement within the fiscal year.
    c. The agency must submit a completed Request for Disbursement form, along with copies of paid invoices/receipts to receive payment. The COUNTY will not reimburse sales tax paid, purchases of gifts/gift cards, gratuities, or alcoholic beverages. All receipts must be itemized.
    d. Failure of the agency to file timely the necessary financial or audit reports for the prior year may have their funds held until the requirement is met.

4. If the AGENCY fails to perform its obligations under this AGREEMENT, or if the AGENCY violates any of the provisions of this AGREEMENT, the COUNTY shall have the right to

immediately terminate this Agreement by giving written notice to the AGENCY termination. In such event, all funds paid to the AGENCY for that quarter shall be refunded pro rata to the COUNTY. The AGENCY shall be fully liable to the COUNTY for all improperly expended funds. The COUNTY may additionally terminate this AGREEMENT without cause upon thirty (30) days advance notice to the AGENCY.

5. (Pass-Through Grant) If the AGREEMENT terminated by the COUNTY involves funds related to a pass-through grant(s), all unexpended funds at the time of such termination shall be properly repaid to the COUNTY. The AGENCY shall be fully liable to the COUNTY for all improperly expended funds in the same amount, as the COUNTY is found liable for repayment by the granting AGENCY.

6. The AGENCY shall not assign any interest in this AGREEMENT and shall not transfer any interest in this AGREEMENT without prior written approval of the COUNTY.

7. In connection with the performance of this AGREEMENT, the AGENCY shall not discriminate against any employee, applicant for employment, or program participant because of race, religion, color, sex, age, handicap, or national origin.

8. The AGENCY shall maintain all accounts, books, ledgers, journals, and records in accordance with generally accepted accounting principles, practices and procedures.

9. The AGENCY must establish and provide to the COUNTY criteria that will be used in monitoring the accomplishment of established goals and objectives along with any performance measures.

10. The AGENCY shall submit to the Onslow County Finance Office annually a status report of all program activities including a summary of the accomplishment of stated goals and objectives.

11. Agency annual financial reporting:

    Unless otherwise approved in writing by the County Finance Officer the following annual reports are required:

    a. If COUNTY funding exceeds $50,000 the AGENCY shall have an audit of its financial records and operations performed by an independent certified public accountant every three years and financial report compilation every other year (year 1-compilation, year-2 compilation, year 3-audit) with a copy of such compilations and audit being submitted to the Onslow County Finance Office.
    b. If COUNTY funding is $50,000 or less the AGENCY shall provide an annual financial report compilation completed by an independent accountant, detailing expenditure of COUNTY funds.
    c. If COUNTY funding is $10,000 or less the AGENCY will provide an annual financial review completed by an independent accountant.
    d. Financial reports shall be approved by the AGENCY's Board of Directors.
    e. The audit or financial report shall be submitted to the COUNTY by November 30 of each fiscal year.
    f. The COUNTY shall be entitled to audit/review the financial records and operations of the AGENCY at the COUNTY's discretion.

12. Sales taxes are not eligible for reimbursement or applied against any grant funds. As a non-profit agency you are responsible to file with the State of North Carolina for any sales taxes paid for which you are due a refund.

13. The COUNTY shall be entitled to conduct program evaluations of the AGENCY's activities particularly as it relates to the accomplishments of established goals and objectives and the quality and impact of services being delivered.

14. All books and records shall be maintained by the AGENCY for a period of at least three years from the date of the final payment under this AGREEMENT and shall be made available for audit or evaluation upon request during regular business hours of the AGENCY.

15. Meetings of the AGENCY's Board of Directors, Advisory Board or Governing Board must be open to the public. Notices of such meetings shall be provided to the Board of Commissioners and the County Clerk.

16. As a condition of receiving funds from Onslow County, the AGENCY agrees to fully indemnify and hold harmless Onslow County, its officers, agents and employees from and against any and all claims, demands, payments, suits, actions, costs, recoveries and judgments of every kind and description brought out of or occurring in connection with, directly or indirectly, activities funded in part or in whole with funds made available under this AGREEMENT.

17. The COUNTY is in no way responsible for the administration and supervision of the AGENCY's officers, employees, and agents, which persons it is agreed are not officers, employees, or agents of the COUNTY.

18. The appropriation of county funds lapses on June 30th. Only expenditures between July 1, 2022 and June 30, 2023 are eligible for reimbursement. Any request for reimbursement of funds must be submitted and received before July 30, 2023.

19. This AGREEMENT may only be amended by written amendments mutually agreed upon by and between the COUNTY and AGENCY.

20. This agreement shall be interpreted in accordance with North Carolina law.

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed in their names by their duly authorized officers, their seals to be hereto affixed the day and year first above written.

ATTEST

Hoffman

ONSLOW COUNTY

County Manager

This Agreement has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

County Finance Officer

ATTEST

AGENCY

Chairman of Board

TOWN OF NORTH TOPSAIL BEACH
2008 Loggerhead Court
North Topsail Beach, NC 28460

FISCAL YEAR **2022-2023**

AMENDMENT TO THE BUDGET ORDINANCE

BA 2022-23.2

BE IT ORDAINED by the Governing Board for the Town of North Topsail Beach, North Carolina that the following amendment be made to the annual budget ordinance for the fiscal year ending June 30, 2023:

Section 1: To amend the Shoreline Protection Fund appropriations with increases as follows:

DEPARTMENT NO:	ACCOUNT		
720	FUTURE PROJECTS FUND	$	150,000.00
	Total Expenditures	**$**	**150,000.00**

This amendment will result in an increase to the following departments:

Shoreline Protection Fund; Future Projects

The purpose of this budget amendment is to appropriate funds for grant funding.

Section 2: To amend the Shoreline Protection Fund estimated revenues with increases as follows:

317	COUNTY GRANT FUNDING	$	150,000.00
	Total Revenues	**$**	**150,000.00**

The Finance Officer has performed a thorough analysis of the Revenues and has determined that the following changes are recommended to ensure a balanced statement for Fiscal Year 2022-2023

Section 3: Copies of the budget ordinance amendment shall be furnished to the Town Clerk, the Council, the Budget Officer, and the Finance Officer for their direction.

Adopted this 3rd day of August 2022.

Motion made by _____, 2nd by _____

VOTE: ___ FOR ___ AGAINST ___ ABSENT

JOANN MCDERMON**, MAYOR**

CAITLIN ELLIOTT, **FINANCE OFFICER**

ORIGINAL BUDGET	**7/1/2022**	$	4,149,263.00
Budget Amendment **2**	**8/3/2022**	$	150,000.00
New Budget Ordinance for FY 22-23		**$**	**4,299,263.00**

TOWN OF NORTH TOPSAIL BEACH
Board of Aldermen
Agenda Item

Consent Agenda Item:	**Ite VIII F**
Date:	08/03/2022

Issue: Budget Amendment 2022-23.3
Department: Administration
Presented by: Caitlin Elliott, Finance Officer
Presentation: Finance Department

Background: Last month, the Board approved the Town Manager to proceed with the sale of property held on Old Folkstone. The Town is in the final stages of this process, selling the lots for a total of $125,000. This amendment will properly allocate the revenues from this sale.

Attachments: Budget Amendment 2022-23.3

Recommendation: Approve Amendment as recommended

Action Needed: Yes

Suggested Motion: *"I, _____ make a motion to approve Budget Amendment 2022-23.3 as presented."*

Funds: 12

Follow Up: Finance Officer

TOWN OF NORTH TOPSAIL BEACH
2008 Loggerhead Court
North Topsail Beach, NC 28460

FISCAL YEAR **2022-2023**

AMENDMENT TO THE BUDGET ORDINANCE

BA 2022-23.3

BE IT ORDAINED by the Governing Board for the Town of North Topsail Beach, North Carolina that the following amendment be made to the annual budget ordinance for the fiscal year ending June 30, 2023:

Section 1: To amend the Capital Improvement Fund appropriations with increases as follows:

DEPARTMENT NO:	ACCOUNT		
750	**FUTURE CAPITAL IMPROVEMENTS**	**$**	**125,000.00**
	Total Expenditures	**$**	**125,000.00**

This amendment will result in an increase to the following departments:

Future Capital Improvements

The purpose of this budget amendment is to appropriate funds for sale of Town property.

Section 2: To amend the Capital Improvement Fund estimated revenues with increases as follows:

383	**SALE OF FIXED ASSETS**	**$**	**125,000.00**
	Total Revenues	**$**	**125,000.00**

The Finance Officer has performed a thorough analysis of the Revenues and has determined that the following changes are recommended to ensure a balanced statement for Fiscal Year 2022-2023

Section 3: Copies of the budget ordinance amendment shall be furnished to the Town Clerk, the Council, the Budget Officer, and the Finance Officer for their direction.

Adopted this 3rd day of August 2022.

Motion made by _____, 2nd by _____

VOTE: ___ FOR ___ AGAINST ___ ABSENT

JOANN MCDERMON**, MAYOR**

CAITLIN ELLIOTT, **FINANCE OFFICER**

ORIGINAL BUDGET	**7/1/2022**	$	990,423.00
Budget Amendment **3**	**8/3/2022**	$	125,000.00
New Budget Ordinance for FY 22-23		**$**	**1,115,423.00**

AGREEMENT TO AMEND CONTRACT

WARNING: ALL PARTIES, INCLUDING ANY LENDER AND SETTLEMENT AGENT, MUST BE PROVIDED A COPY OF THIS AGREEMENT

Christopher Huie, Tiffany Huie, as Buyer, and **Town of North Topsail Beach**, as Seller, have entered into a contract on the Offer to Purchase and Contract (form 2-T) or the Offer to Purchase and Contract - Vacant Lot/Land (form 12-T) ("Contract") regarding the purchase and sale of the following property (insert property address): **328-336 Folkstone Road, Holly Ridge, NC 28445** ("Property").

Buyer and Seller hereby agree to amend the Contract as set forth below *[check applicable box(es)]:*

☐ **Purchase Price.** The Purchase Price is hereby changed from: $ _____ to: $ _____ .

☐ (Additional) Earnest Money. The (Additional) Earnest Money Deposit is hereby changed from: $ _____ to: $ _____ .

☐ **(Additional) Earnest Money Deposit Date:** The date by which the (Additional) Earnest Money Deposit shall be paid to Escrow Agent is hereby changed to extend through 5:00 p.m. on: _____ .

☐ **Building Deposit.** The Building Deposit is hereby changed from: $ _____ to: $ _____ .

☐ **Due Diligence Fee.** The Due Diligence Fee paid to Seller is hereby changed from: $ _____ to: $ _____ .

☒ **Due Diligence Period.** The expiration date of the Due Diligence Period is hereby changed to extend through 5:00 p.m. on **August 3, 2022**, ***TIME BEING OF THE ESSENCE.***

☐ **Escrow Agent.** The Escrow Agent is hereby changed to: _____ .

NOTE: Use the ESCROW AGENT ACKNOWLEDGMENT OF RECEIPT OF EARNEST MONEY DEPOSIT

☐ **Settlement Date.** The Settlement Date is hereby changed to: _____ .
☐ *(check only if the following also will apply)* The Delay in Settlement/Closing paragraph in the Contract is hereby amended for the sole purpose of changing the permitted time a Delaying Party may delay in completing Settlement and Closing from seven (7) days to four (4) days.

☐ **Expenses.** The amount Seller shall pay at Settlement toward Buyer's expenses associated with the purchase of the Property is hereby changed from: $ _____ to: $ _____ .

☐ **Home Warranty.** The Home Warranty paragraph of the Contract is hereby changed to provide as follows:
☐ No home warranty is to be provided by Seller.
☐ Buyer may obtain a one-year home warranty at a cost not to exceed $_____ which includes sales tax and Seller agrees to pay for it at Settlement.

All terms and conditions of the Contract not specifically amended herein shall remain in full force and effect.

Buyer initials _____ _____ Seller initials AD _____ _____

Treasure Realty, PO Box 389 Sneads Ferry NC 28460 Phone: **9109340339** Fax: **9103272035** **Town of NTB, 336**
Joseph Powers

THE NORTH CAROLINA ASSOCIATION OF REALTORS®, INC. MAKES NO REPRESENTATION AS T
VALIDITY OR ADEQUACY OF ANY PROVISION OF THIS FORM IN ANY SPECIFIC TRANSACTION.

Buyer: _____ Date _____	Seller: _____ Date _____
Christopher Huie	**Town of North Topsail Beach**
Buyer: _____ Date _____	Seller: _____ Date _____
Tiffany Huie	
Entity Buyer:	Entity Seller:
_____	**Town of North Topsail Beach**
(Name of LLC/Corporation/Partnership/Trust/etc.)	(Name of LLC/Corporation/Partnership/Trust/etc.)
By: _____	By: DocuSigned by: Alice Derian 5259A3DB10DC489...
Name: _____	Name: **Alice Derian**
Title: _____	Title: **Manager**
Date: _____	Date: 7/26/2022 | 8:43 AM EDT

FORM 4-T
Revised 7/2021
© 7/2021

North Carolina Coastal Federation
Working Together for a Healthy Coast

Living Shoreline Cost-Share Contract

Date: July 21, 2022

Thank you for your interest in installing a living shoreline on your property. This form contains the Agreement ("Contract") and basic information about your project. If you have any questions about this agreement, please contact Tracy Skrabal at 910.231.6601 or tracys@nccoast.org.

Landowner:
Property Address: Richard Peters Park, Town of North Topsail Beach, NC (Alice Derian, Town Manager)
Mailing Address: 1000 NC Hwy 210 Sneads Ferry (North Topsail Beach), NC 28460
Phone: (910) 328-1349
Email: townmanager@ntbnc.org

Permit: CAMA General Permit for riprap revetment for wetlands protection **15A NCAC 07H .2400**

Living Shoreline Type: Sandbar Oyster Company "Oyster Catcher™" Marsh Toe Revetment

Estimated Feet of Living Shoreline: 195

Project Design Attachments: (Note: To qualify for this contractual cost share program, project designs much be submitted for review/approval by Tracy Skrabal prior to construction and/or approval of this contract.)

NOTE: See attached proposal and plans from Sandbar Oyster Company, dated July 21, 2022

Constructed by: Sandbar Oyster Company

Contractor/Engineer: Sandbar Oyster Company
Mailing Address: 5117 Webb St., Morehead City, NC 28557
Phone: 252-732-4516
Email: niels@sandbaroystercompany.com

Cost-Share Grant: 1189: NC General Assembly

Estimated Total Cost of Living Shoreline:

Direct expenses paid by landowner:
(To include any permit costs, design, construction, supplies, etc. (receipts, or other proof of payment required) $0

In-kind services contributed by landowner:

Labor (___ hrs @ $28.54/hr)	$N/A
Estimated Total Project Cost (per July 21, 2022 proposal/ Contract with **Sandbar Oyster Company**	**$14,359.40**
Less NCGA Cost-Share Funding[2]	-$14,359.40
Less in-kind services	-$ N/A
Total Estimated Final Cost to Landowner[3]	**$0**

This estimate is valid for 30 days.

[1]The CAMA permit will be obtained by the contractor, in cooperation with the Town of North Topsail Beach. The living shoreline will be built by the landowner according to the CAMA permit and the conditions set forth therein. The landowner as the CAMA permit applicant is ultimately responsible for permit compliance. The landowner is responsible if any damage occurs to the property during living shoreline installation. The federation will provide guidance on living shoreline construction methods.

[2] *Payment from the NCGA is granted through the North Carolina Coastal Federation.*

[3]*Payment by the North Carolina Coastal Federation is contingent on the following:*

- *Copies of the CAMA permit, project receipts/invoices, and before/after photos must be provided to the Federation.*
- *The living shoreline must be built according to the CAMA permit and the conditions set forth therein.*
- *Approved long-term Use and Maintenance agreement.*

[3]Final costs will reflect the actual amount of materials, supplies and labor hours used to build the living shoreline, and as a result may be higher or lower than the estimated costs above.

Long-Term Use and Maintenance:

As a condition of receiving cost-share monies for the installation of the living shoreline, the landowner agrees to leave the living shoreline structure and existing/restored marsh plants in place in perpetuity to ensure that the stabilization, habitat and water quality objectives of the project are met. If title to this land is transferred to another party at any time, it shall be the landowner's responsibility to advise the new owner of this contract.

Living shorelines are highly resilient, but they require routine monitoring and minimal maintenance to remain effective. The landowner agrees to provide routine monitoring and maintenance of the structure and marsh plants for at least 5 years after the living shoreline is constructed. Monitoring includes assessing the condition of the structure and marsh and taking photos of the living shoreline from the same location at least once per year and after major storms. The landowner should keep the project area clear of trash and other debris, avoid the use of herbicides within the project area, agree to not cut or mow existing and/or restored coastal marsh, and avoid clearing paths through the marsh that could transmit runoff directly into the adjacent water body and/or create erosion. The landowner may plant the shoreline with plugs of marsh grasses at any time to maintain or increase the function of the living shoreline. The landowner is responsible for any such monitoring and maintenance costs. Monitoring and maintenance

activities are to be reported to the North Carolina Coastal Federation annually following construction. Additional guidance on monitoring and maintenance is available from the Federation upon request.

Your signature below asserts that you have the legal right to enter into this agreement to have the above services performed on the subject property and you agree to the price estimate and conditions above and on the preceding page.

Signature of Landowner: _____ Date: _____

Signature of Landowner: _____ Date: _____

Rec'd by North Carolina Coastal Federation _____ Date:_____

SANDBAR
OYSTER COMPANY | Shellfishly Motivated™

5117 Webb Street
Morehead City
North Carolina 28557
Niels@SandbarOysterCompany.com
252.732.4516

To: Alice Derian, Town Manager, Town of North Topsail Beach, North Carolina
From: Niels Lindquist, Sandbar Oyster Company
Subject: Proposal for the North Topsail Beach Town Park living shoreline
Date: July 21, 2022

Dear Ms. Derian,
Sandbar Oyster Company (hereafter SANDBAR) is excited to work with the Town of North Topsail Beach and Tracy Skrabal with the North Carolina Coastal Federation (NCCF) to create a living shoreline along a 195-ft stretch of shoreline at Town Park (Figures 1 and 2). Living shorelines use nature-based features, including oyster reefs and saltmarsh plants, to protect shorelines from degradation and erosion, and offer long-term resilience in the face of rising sea levels.

Structural Summary: The proposed living shoreline for the North Topsail Beach Town Park, as diagramed (Figures 2-5) will consist of an oyster reef marsh-toe revetment created within the intertidal Optimal Growth Zone (OGZ) for oysters (Figure 5 A; Ridge et al. 2015) using the "Table" form of SANDBAR's patented/patent-pending biodegradable hardscape called Oyster Catcher™. The Tables will act as a reef scaffold on which immense numbers of oyster larvae will settle. Within 1-2 years, oyster growth will fill in the void space of the scaffold with tightly fused and intermingled shells of the growing oysters, resulting in an exceptionally dense and resilient oyster reef. Once installed, the Oyster Catcher™ marsh-toe revetment will provide immediate wave attenuation services and create an environment under and between the revetment and shoreline conducive to sediment accumulation that will facilitate the growth and expansion of the existing *Spartina alterniflora* saltmarsh (Figure 5 C).

Scope of Work: SANDBAR will manufacture the biodegradable hardscape element for the marsh-toe revetment, transport these materials to Beach Park and deployment the Tables to create the Oyster Catcher™ structure as shown in the Figures 2-4. Figures 6-10 show examples of shoreline reefs created with Oyster Catcher™ and saltmarsh plant communities developing behind them.

Timing: Once a contract has been signed by all parties, SANDBAR will begin the manufacture of the Oyster Catcher™ elements for the Town Park living shoreline project. It is anticipated that this manufacturing effort will take ~2 weeks, possibly longer if inclement weather prolongs the manufacturing process. Once the materials are made, their deployment to create the revetment structure, should take two low-tide cycles (~6 hours). Additional deployment time may be needed if water levels are running substantially higher than predicted on the scheduled deployment days. If no substantial delays occur, we expect to have completed construction of the revetment by August 1, 2022.

Payment Terms: Payment of 50% of the estimated contract price (see Table for an itemized breakdown of material and service costs) shall be made within 2 weeks of contract engagement to support materials acquisitions and Oyster Catcher™ manufacturing efforts. The remaining 50% of the contract price is due upon completion of the revetment installation. Direct deposit of funds is preferred, and secondarily, checks mailed to Sandbar Oyster Company Inc., 5117 Webb Street, Morehead City, NC 28557.

Limited Warranty: Structures placed along estuarine shorelines are exposed to multiple forces and stresses that when severe can cause damage to structures; no warranties are made regarding the performance of the revetment under extreme conditions (e.g. a major hurricane). However; to date, Table-based structures have performed exceptionally well, even under extreme conditions. Sandbar Oyster Company managers will inspect the condition of the constructed shoreline structures monthly for 12 months following complete of the construction phase of the project. Any identified deficiencies will be discussed with NCCF/North Topsail Beach town staff and a plan for repairs will be developed. Relatively minor repairs to maintain the function of the Oyster Catcher™ reef revetment will be made by Sandbar Oyster Company at no cost to NCCF or the Town of North Topsail Beach. In the event of a catastrophic event, for example a major hurricane, Sandbar Oyster Company will participate in the evaluation of the damage and scope of repairs needed but will not be financially responsible for affecting the repairs.

SITE CONSIDERATIONS

The structure for the proposed marsh-toe revetment was informed by a site visit conducted May 26, 2022.

Environmental Factors

Wind wave exposure: minimal. This shoreline is located with a small cove well protected from wind waves.

Boat wakes: minimal boat wake impact this shoreline with little boating activity occurring within the park's cove.

Currents: weak tidal currents.

Bottom characteristics: generally, a mud and sand mix with some buried shell materials.

Salinity: high within SE NC coastal sounds, generally limits oyster reef growth to the intertidal OGZ.

Submerged Aquatic Vegetation (SAV): none observed at this site.

Tide range: ~2.5 ft, which for the soundside shoreline of Town Park area yields an intertidal oyster growth zone of ~ 1.25 ft of tidal elevation between mean low water and mean water level.

Biological Factors

Oyster and saltmarsh abundance and growth: Figure 5 A shows oysters in the OGZ on dock pilings at Town Park, although scattered clusters of live oysters found below the mean low tide line (Figure 5 B) suggests subtidal reef development is also likely. Figure 5 C shows the existing saltmarsh (*Spartina alterniflora*) community along the shoreline where the Oyster Catcher™ marsh-toe revetment will be constructed.

Figure 1. Location of the proposed Oyster Catcher™ marsh-toe revetment (yellow-lined box) on the soundside of the North Topsail Beach Town Park. Image from the Onslow County government GIS website; 2022 imagery.

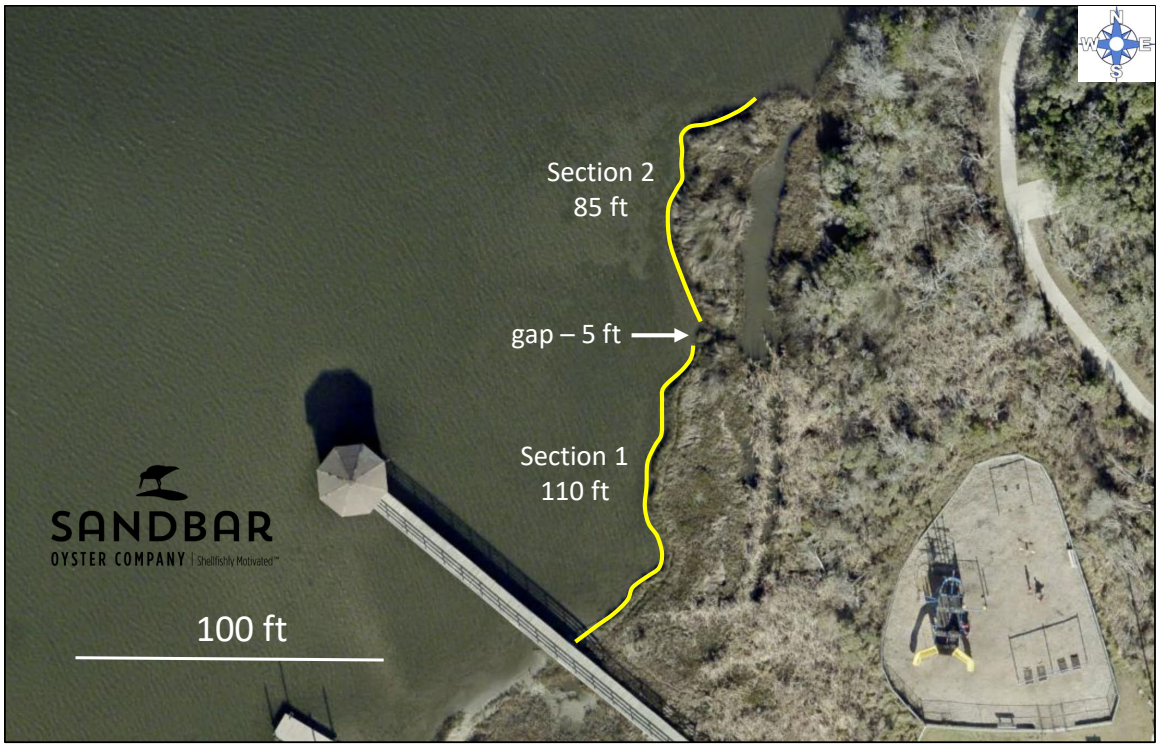


Figure 2. Proposed location and segmentation of the 195 ft-long Oyster Catcher™ marsh-toe revetment proposed for the North Topsail Beach Town Park showing a southern section (#1) of 110 ft and a northern section (#2) of 85 ft. Image from the Onslow County government GIS website; 2022 imagery.

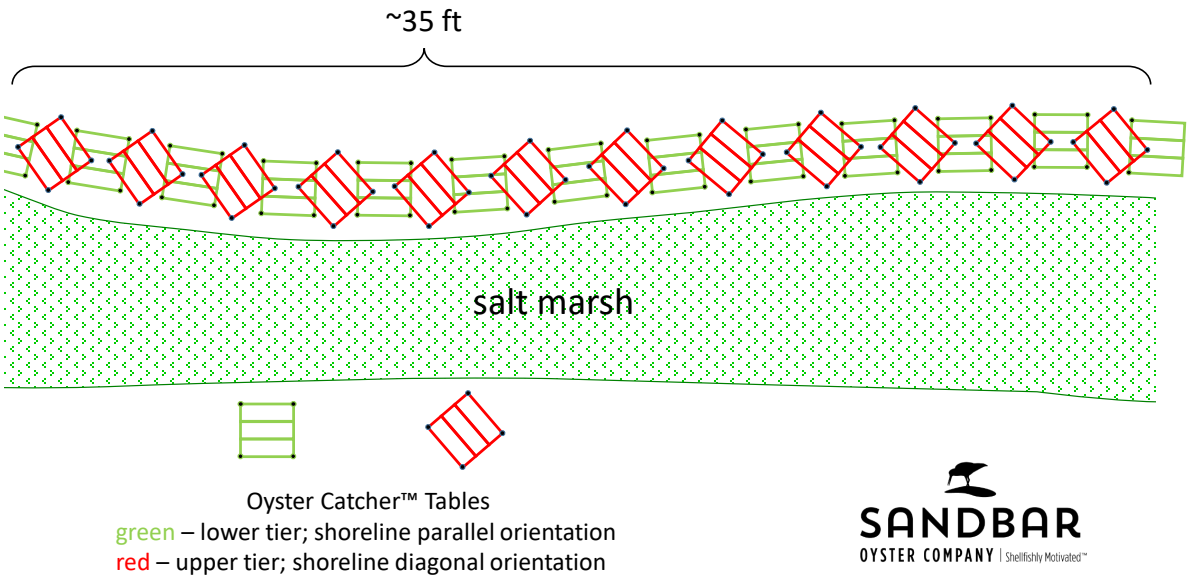


Figure 3. Plan view of an ~35-ft section of the proposed Oyster Catcher™ marsh-toe revetment showing the arrangement of Tables.

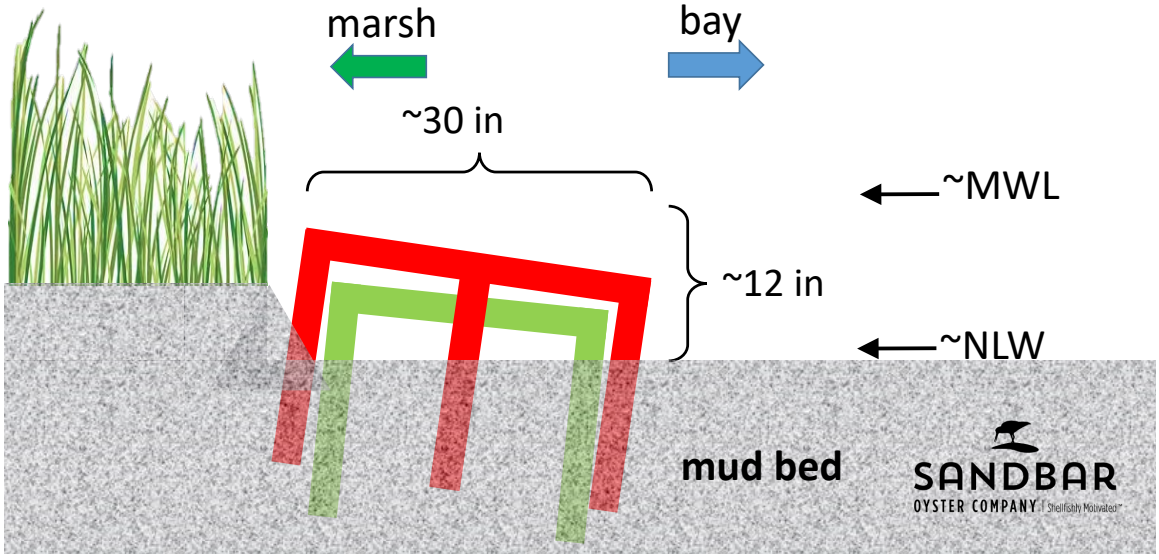


Figure 4. Cross-section view of the proposed Oyster Catcher™ Table marsh-toe revetment.

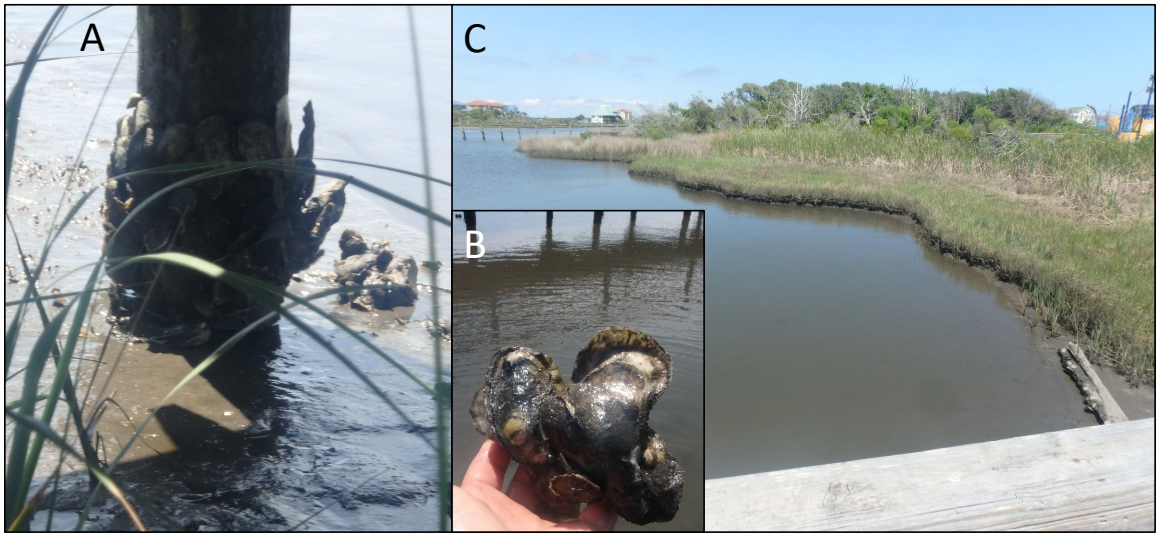


Figure 5. A – view of oysters growing in the intertidal zone on pilings of the dock on the southwest side of the Town Park indicating the tidal range over which oyster reef can develop in the park's environment. B – example of the clusters of live oysters growing along the Beach Park shoreline, suggesting oysters can also thrive subtidally along the Town Park shoreline. C – view looking south to north at low tide of the shoreline where the Oyster Catcher™ marsh-toe revetment will be installed.

Table. Itemized cost estimate for the Oyster Catcher™ Table marsh-toe revetment.

Item	Quantity	Unit	Description	Unit Price	Total
1	130	each	Oyster Catcher™ Table	$70.00	$9,100.00
2	1		Delivery	$740.00	$740.00
3	1		Installation	$2,160.00	$2,160.00
4	1		DCM CAMA General Permit	$200.00	$200.00
5	1		Project Administration (10% of items 1-4)	$1,220.00	$1,220.00
			Subtotal		$13,420.00
			Sales Tax (7.00%)		$939.40
			TOTAL		**$14,359.40**

Nominal Project Length (ft) – 195
Cost per Project Linear Ft - ~$74

Features and Benefits of the Oyster Catcher™ Table-Based Oyster Reefs

Figures 6 through 10 show examples of robust oyster community development on Oyster Catcher™-based reef foundations placed in the OGZ. These exceptional reef development outcomes have been realized in environments ranging from high wave/current energies to more quiescent tidal creeks (see Moore et al. 2020 and Wellman et al. 2021 for projects comparing oyster community development on Oyster Catcher™ vs. shell bag reefs, a long-used standard for oyster reef sill and marsh-toe revetment creation).

Figure 6. Examples of oyster growth on stacked Oyster Catcher™ Tables (top); rows of single Oyster Catcher™ Tables (bottom) and close-up of oyster growth on Tables (bottom insert) 18 months after deployment in North Carolina.

Figure 7. Oyster Catcher™ reef (185 ft) at the NC Aquarium at Pine Knoll Shores. Sill constructed April 2019; picture date February 10, 2022. Note that plant growth during spring and summer 2022 has expanded this saltmarsh to the back edge of the sill.

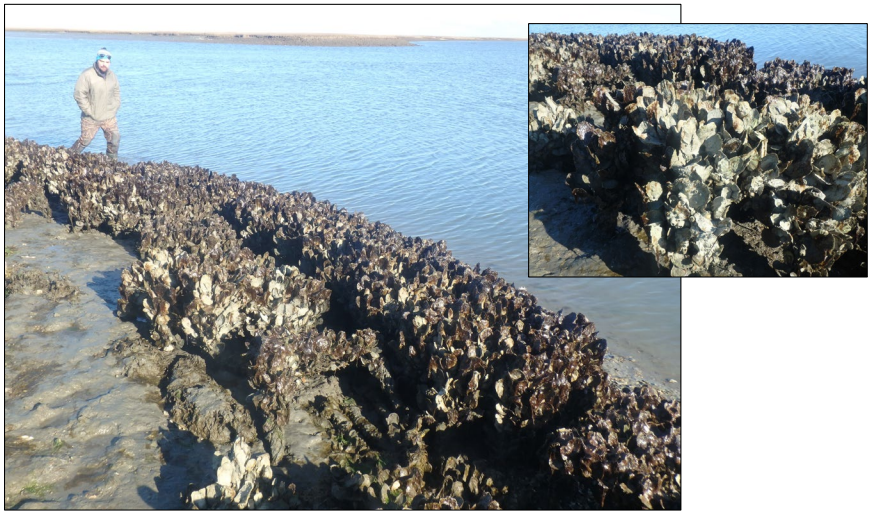


Figure 8. Oyster reef development on Oyster Catcher™ Tables at Wachapreague, Virginia. Project with The Nature Conservancy. Tables deployed June 2020; pictures taken January 2022.

Figure 9. Oyster reef development on Oyster Catcher™ Tables vs. bagged oyster shell near Savannah, Georgia. Materials deployed May 2021; pictures taken December 2021.

Features and Benefits of the Oyster Catcher™ Table Reef (cont.)

- Oyster Catcher™ surface roughness is highly attractive to settling oyster larvae and protective of juvenile oysters.

- Oyster Catcher™ cm-scale element spacing (i.e. within and among Tables legs and horizontal cross members) enhances oyster community development by reducing oyster mortality from larger predatory fishes and invertebrates.

- The roughness of Oyster Catcher™ Table legs when buried in sediments ranging from sand to soft mud provide exceptional vertical stability even after substantial oyster community development; thus, no underlayment is needed to prevent potential subsidence of the proposed Oyster Catcher™ Table-based reefs. Figure 10 shows Tables used in soft sediments in Georgia and Virginia. No underlayment has ever been needed with Oyster Catcher™-based reefs.

Figure 10. Views of Oyster Catcher™ Table deployments in soft, muddy bottoms in Georgia (left) and Virginia (right).

- Oyster Catcher™ is a non-carbonate reef foundation material that does not allow colonization by carbonate (oyster shell and limestone rock) boring/eroding oyster pests.

- The ability to created elevated Oyster Catcher™ reef scaffolds is proving to be a game-changing innovation that yield reefs of fused and intermingled oysters exceptionally robust to high wave and current disturbances. A central strategy of reef development with Oyster Catcher™ is creating a scaffold of elements on which oyster settlement and growth is facilitated and over time fills in the void space of the scaffold with layered generations of oysters.

- The initial open void spaces of the proposed Oyster Catcher™ marsh-toe revetment will allow facile passage of mobile species through the revetment structure until such time the void space fills in with oyster growth and/or accumulated sediments. Further, with the height of the Oyster Catcher™ revetment being at mean water level, at higher tides, mobile species can move over the top of the revetment at higher tides.

- With the low current and wave energies at the Town Park site, oyster feces and pseudofeces are likely to accumulate rapidly underneath and behind the revetment thereby promoting salt marsh expansion behind the revetment.

- Oyster Catcher™ is a lightweight material that offers ease of handling, lower transportation and installation costs and contributes to its resistance to sinking in soft sediments. For example, the average weight of a Table is ~25 lbs. Further, the Tables can be stacked in a spiral fashion, which reduces the footprint of truck, trailer and boat deck space needed to transport Tables.

Total Cost of the Proposed Oyster Catcher™ Table Marsh-Toe Revetment - $14,359.40

Included in this bid are:

Materials (Oyster Catcher™ Tables): $9,100.00

Construction (transport to site and deployment): $2,900.00

CAMA General Permit Application Fee: $200.00

Project Design & Administration (10% of materials, construction, permit fee): $1,220.00

NC Sales and Use tax (Onslow County rate – 7.00%): $939.40

Cost per foot based on length of the marsh-toe revetment (195 ft) ~$74 per ft

SANDBAR greatly appreciates the opportunity to submit a proposal for this project. For questions related to our proposal, please contact Dr. Niels Lindquist.

Sincerely, Niels Lindquist

CEO and Co-Founder of Sandbar Oyster Company
Cell: (252) 732-4516
Email: niels@sandbaroystercompany.com

References

Moore, CS, RK Gittman, BJ Puckett, EH Wellman, and AMH Blakeslee. 2020. If you build it, they will come: restoration positively influences free-living and parasite diversity in a restored tidal marsh. *Food Webs* 25: e00167

Ridge, JT, AB Rodriguez, FJ Fodrie, NL Lindquist, MC Brodeur, SE Coleman, JH Grabowski and EJ Theuerkauf. 2015. Maximizing oyster-reef growth supports green infrastructure with accelerating sea-level rise. *Scientific Reports* **5**; Article number 14785; doi:10.1038/srep14785

Wellman, EH, CJ Baillie, BJ Puckett, SE Donaher, SN Trackenberg and RK Gittman. 2021. Reef design and site hydrodynamics mediate oyster restoration and marsh stabilization outcomes. Ecological Applications 2022;32:e2506; https://doi.org/10.1002/eap.2506

Proposal Acceptance Signatures

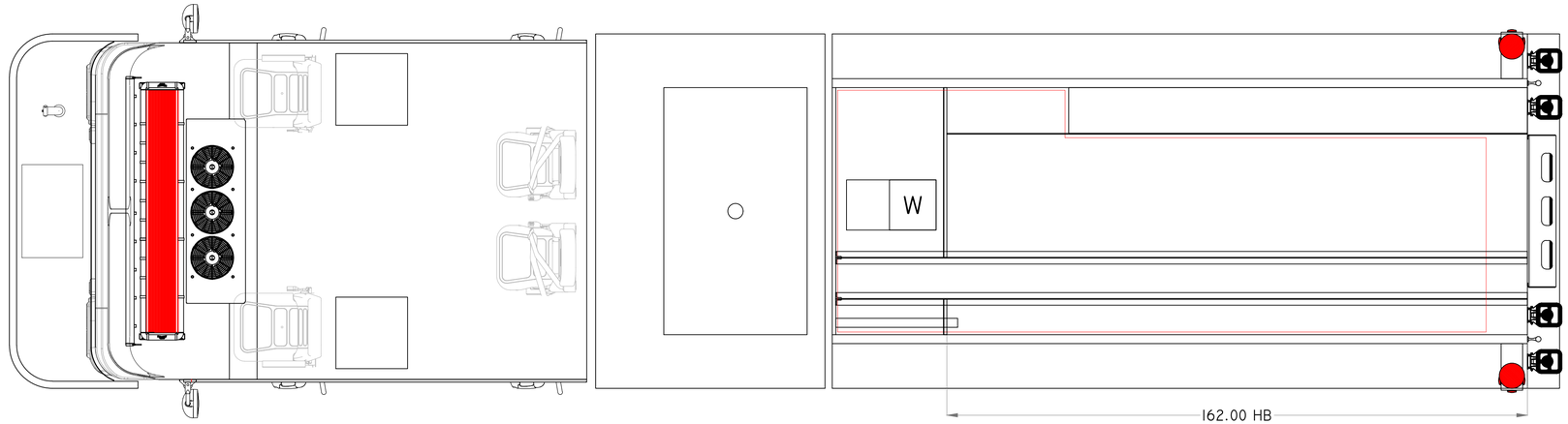
July 21, 2022

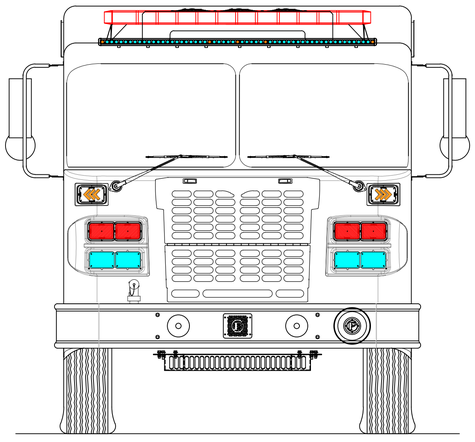
Niels Lindquist,
CEO Sandbar Oyster Company, Inc.

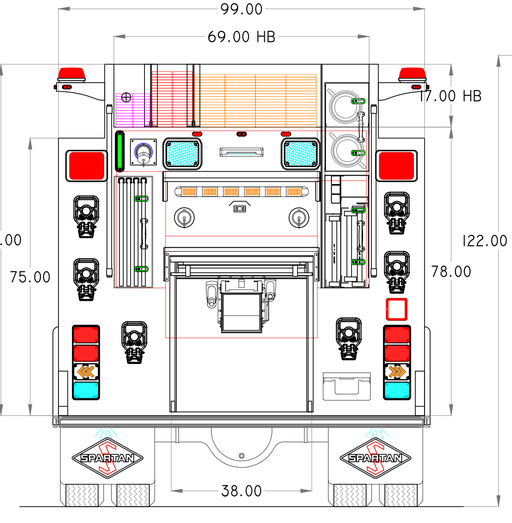
Date

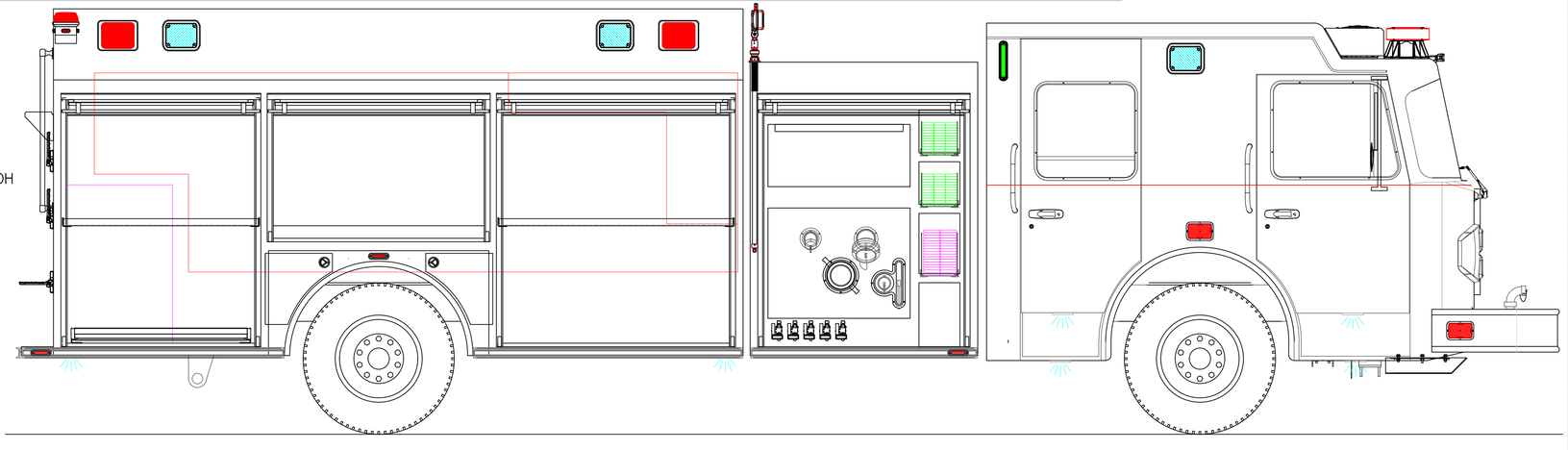
Alice Derian
Town Manager
North Topsail Beach

Date









SPARTAN® REV GROUP

EMERGENCY RESPONSE

Chassis:	Spartan Metro Star EMFD 10RR
Engine:	Cummins L9 450hp
Transmission:	Allison 3000 EVS
Axles:	21,500# Front / 33,000# Rear
Model:	Star Pumper
Water/Foam:	1600 / - Gallons
Pump:	Waterous CXS 1500gpm
Foam System:	-
Generator:	-

Door Framed Openings

Compartment	Door Framed Opening
L1	66.5-W x 70.0-H
L2	62.0-W x 40.5-H
L3	55.5-W x 70.0-H
R1	66.5-W x 70.0-H
R2	62.0-W x 40.5-H
R3	55.5-W x 70.0-H
B1	38.0-W x 41.0-H

Special Notes:

The pump panel layout is reference only. The location of components will changes as required for design and customer inputs post the pre-construction meeting.

CUSTOMER

THIS DRAWING IS A CLOSE APPROXIMATION OF YOUR FIRE APPARATUS. IN ALL CASES WHERE THE DRAWING AND THE WRITTEN SPECIFICATION DIFFER, THE SPECIFICATION SHALL PREVAIL. PLEASE WORK WITH YOUR DEALER TO ASSURE THAT THE WRITTEN SPECIFICATION REPRESENTS WHAT YOU WANT IN YOUR FINISHED PRODUCT. SPARTAN EMERGENCY RESPONSE BUILDS TO THE WRITTEN SPECIFICATION, NOT THE DRAWING TO ASSURE THAT YOUR NEEDS ARE MET.

Rev	Date	Description	Name
1	06/07/22	New Files	R.H.
0	04/18/22	Initial Proposal	B.E.H.

Scale: NOT TO SCALE

Customer:

North Topsail Beach VFD

Truck Number:	Dealer:
000000	Atlantic Coast Fire Truck

North Topsail Beach Fire Department

North Topsail Beach, NC 28460

APPARATUS BRAND

The apparatus provided shall be a Spartan Emergency Response brand of Spartan Fire, LLC.

INTENT OF SPECIFICATIONS

Spartan Fire, LLC and the authorized Dealership representing Spartan submit the following detailed proposal for your consideration.

The following items have been specifically addressed regardless of whether they are included in the published specifications.

This detailed proposal supersedes the published specifications and will be the specifications in which the apparatus will be designed and manufactured to, if awarded the contract.

Any mutually agreed changes made during a pre-construction meeting or build process, will become part of the contract and the build specification. Based on these processes any costs and or credits will be applied to the final invoice.

We maintain a complete on-site parts department with same-day shipping provided for all necessary service parts.

Spartan Fire is a U.S. based provider of fire apparatus. Spartan designs and manufactures fire and rescue apparatus which utilize the approach of complete product integration including the apparatus body and pump house structures. Engineering, assembly and testing all take place at Spartan Fire facilities.

Each apparatus is quality control inspected with full documentation at each step of the manufacturing process.

The unit will be manufactured at a Spartan manufacturing facility.

It shall be the intent of these specifications to provide a complete apparatus equipped as hereinafter and as specified. With a view to obtaining the best results and the most acceptable apparatus for service in the Department, these specifications cover only the general requirements as to the type of construction and tests to which the apparatus must conform, together with certain details as to finish, equipment and appliances with which the successful bidder shall conform. Minor details of construction and materials where not otherwise specified are left to the discretion of the contractor, who shall be solely responsible for the design and construction for all features. The manufacturer shall provide loose equipment only when specified by the customer. The (NFPA) 1901, Standard for Automotive Fire Apparatus, unless otherwise specified as requested by the customer in these specifications, shall prevail.

North Topsail Beach Fire Department

North Topsail Beach, NC 28460

The apparatus must meet all NFPA, DOT, ICC, AE, SAE, UL, TRA, FMVSS and local state Motor Vehicle Requirements.

It is required that the apparatus be manufactured to current NFPA edition standards, all NFPA equipment (LOOSE EQUIPMENT) not specified in the specifications will not be provided by the contractor.

Bids shall only be considered from companies that have an established reputation in the field of fire apparatus construction that have been in business and construction for a minimum of twenty-five (25) years.

The bidder of the apparatus herein specified; shall be wholly owned (100%) and managed by a Company, Corporation, and/or Parent Company that is wholly based, and permanently resides in the United States of America.

The Company, Corporation, and/or Parent Company and all assets belonging to such; shall be wholly owned and managed (100%) by the entities specified above.

The bidder shall state the location of the manufacturing facility where the apparatus is to be built and the location of the parent company if a subsidiary of a manufacturer.

The bidder shall provide satisfactory evidence of their ability to construct the apparatus specified in the bidders manufacturing facilities.

The bidder's representation shall state the length of time representing the manufacturer of specified apparatus.

Due to the severe service requirements the department will impose on the apparatus as specified, each bidder shall provide a list of at least six (6) departments in which similar apparatus utilizing the brand of chassis proposed have been in service for over one year. This list shall include contact names and phone numbers.

Due to the importance of keeping this vital piece of firefighting apparatus in service with a minimum of downtime, the manufacturer shall maintain a network of service centers with factory-training personnel.

The bid shall be accompanied by a set of "Contractor's Specifications" consisting of a detailed description of the apparatus being furnished under this contract which conform. Computer runoff sheets are not acceptable as "Contractor's Specifications". Item compliance shall be indicated in the "Yes/No" column of each item by all Bidders. Note: Each bidder shall submit their bid in the same sequence as these specifications to allow the department to easily compare.

These specifications shall indicate size, type, model and make of all component parts and equipment.

QUALITY AND WORKMANSHIP

North Topsail Beach Fire Department

North Topsail Beach, NC 28460

The design of the Apparatus shall embody the latest approved automotive engineering practices.

The workmanship must be of the highest quality in its respective field. Special consideration will be given to the following points: Accessibility of the various units, which require periodic maintenance, ease of operation (including both pumping and driving) and symmetrical proportions.

Construction shall be rugged and ample safety factors shall be provided to carry loads as specified and to meet both on and off road requirements and to speed conditions as set forth under "Performance tests and requirements".

Welding shall be employed in the assembly of the apparatus in a manner that will not prevent the ready removal of any component part for service or repair, with apparatus bodies of bolt together design not being acceptable.

All steel welding shall follow American Welding Society requirements for AWS D1.1:2012 Structural Welding Code for welding steel structural assemblies. All aluminum welding shall follow American Welding Society requirements for AWS D1.2/D1.2M:2003 Structural Welding Code for any type of structure made from aluminum structural alloys. All sheet metal welding shall follow American Welding Society AWS D9.1M/D9.1:2006 Structural Welding code for Arc/Braze requirements of non-structural materials. All pressure pipe welding shall follow American Society of Mechanical Engineers ASME IX/ ASME B31:2010 requirements to the qualification of procedures in welding and brazing, in accordance with the ASME Boiler and Pressure Vessel Code and the ASME B31 Code for Pressure Piping. Flux core arc welding to use alloy rods, type 7000, American Welding Society AWS standards A5.20-E70T1.

DELIVERY

The bidder shall provide the number of calendar days from the date the bid is awarded to the delivery of the completed unit.

A qualified delivery engineer representing the contractor shall deliver the apparatus and instruct the Fire Department personnel in the proper operation, care and maintenance of the equipment delivered.

To ensure proper break-in of all components while still under warranty, the apparatus shall be delivered under its own power. The unit will remain insured by the apparatus manufacturer until the department accepts the unit.

PERFORMANCE TESTS AND REQUIREMENTS

A road test shall be conducted with the apparatus fully loaded to its estimated in-service weight and shall be capable of the following performance while on dry paved roads that are in good condition and for a continuous run of ten (10) miles or more, during which time the apparatus shall show no loss of power or overheating. The transmission drive shaft or shafts and rear axles shall run quietly and be free from abnormal vibration or noise

throughout the operating range of the apparatus. The successful bidder shall furnish a Weight Certificate showing weights on front axle, rear axles and total weight for the completed apparatus at time of delivery.

A. The apparatus shall be capable of accelerating to 35 MPH (55 km/hr) from a standing start within 25 seconds on a level concrete highway without exceeding the maximum governed RPM of the engine.

B. The apparatus, fully loaded, shall be capable of obtaining a minimum top speed of 50 MPH (80 km/hr) on a level dry concrete highway with the engine not exceeding its governed RPM (fully loaded).

C. The service brakes shall be capable of stopping a fully loaded vehicle in 35ft (10.7 m) at 20 mph (32.2 km/hr) on a level concrete highway. The air brake system shall conform to Federal Motor Vehicle Safety Standards (FMVSS) 121.

D. The apparatus, when fully loaded, shall have not less than 25 percent or more than 50 percent of the weight on the front axle, and not less than 50 percent nor more than 75 percent on the rear axle.

E. From a steady pace of 15 mph, the vehicle will accelerate to a true speed of 35 mph within 15 seconds. This will be accomplished without moving gear selector.

F. The apparatus will be able to maintain a speed of at least 20 mph on any grade up to and including 6 percent.

G. The contractor shall have the Underwriter's Laboratories, LLC conduct the tests of the apparatus as in accordance with standard practices required by the Underwriter Laboratories, LLC (Guide for the Certification of Fire Department Pumper latest edition). A copy of all tests shall accompany the Apparatus. (For apparatus sold within Canadian ULC S515 latest revision shall prevail).

H. The contractor shall furnish copies of the Pump Manufacturer's Certification of hydrostatic test, the Engine Manufacturer current certified brake horsepower curve, and the Manufacturer's record of pumper construction details when delivered.

I. All fluid levels and applicable pressures will be brought to proper levels and noted prior to final delivery.

INFORMATION REQUIRED

The manufacturer shall supply at time of delivery, a complete operation and maintenance manual covering the completed apparatus as delivered.

A Fire Apparatus Safety Guide published by Fire Apparatus Manufacturer's Association shall be provided with the apparatus upon delivery. This manual includes essential safety information for fire fighters, fire chiefs,

apparatus mechanics, and fire department safety officers. The guide is applicable to municipal, wildland, and airport firefighting apparatus manufactured on either custom or commercial chassis.

A permanent plate shall be mounted in the driver's compartment to specify the quantity and type of the following fluids used in the vehicle: Engine oil, engine coolant, and chassis transmission fluid, pump transmission lubrication fluid, pump primer fluid (if used) and drive axle lubrication fluid.

The manufacture shall supply the final certification of GVWR and GAWR on a nameplate affixed to the vehicle.

A permanent plate in the driver's compartment shall be installed, specifying the seating capacity of the enclosed cab.

Signs that state "OCCUPANTS MUST BE SEATED AND BELTED WHEN APPARATUS IS IN MOTION" shall be provided and will be visible from each seated position. An accident prevention sign shall be located at the rear step area of the apparatus. It shall warn all personnel that standing on the step while apparatus is in motion shall be prohibited.

A nameplate indicating the chassis transmission shift selector position to be used when pumping shall be provided in the driving compartment and located so that it can be easily read from the driver's position.

LIABILITY

The bidder, if their bid is accepted, shall defend any and all suits and assume all liability for the use of any patented device or article forming part of the apparatus or any appliance provided under the contract.

GENERAL CONSTRUCTION

The apparatus shall be designed with due consideration to distribution of load between the front and rear axles, so that all specified equipment, including filled water tank, a full complement of personnel and fire hose will be carried without injury to the apparatus. Weight balance and distribution shall be in accordance with the recommendations of the (NFPA) 1901, Standard for Automotive Fire Apparatus, documentation.

The apparatus shall be designed so that all recommended daily maintenance checks can be performed easily by the operator without the need for hand tools. Apparatus components that interfere with repair or removal of other major components must be attached with fasteners (cap, screws, nuts, etc.) so that the components can be removed and installed with normal hand tools. These components must not be welded or otherwise permanently secured into place.

The GAWR and GVWR of the chassis shall be adequate to carry the fully equipped apparatus including all tanks filled, the specified hose load, unequipped personnel weight, ground ladders and a miscellaneous

equipment allowance per NFPA criteria. It shall be the responsibility of the purchaser to provide the contractor with the weight of equipment to be carried if it is in excess of the allowance as set forth by NFPA.

The unequipped personnel weight shall be calculated at 250 lbs. per person times the maximum number of persons to ride on the apparatus.

The height of the fully loaded vehicle's center of gravity shall not exceed the chassis manufacturer's maximum limit.

The front to rear weight distribution of the fully loaded vehicle shall be within the limits set by the chassis manufacturer. The front axle loads shall not be less than the minimum axle loads specified by the chassis manufacturer, under full loads and all other loading conditions.

The difference in weight on the end of each axle, from side to side, when the vehicle is fully loaded and equipped shall not exceed 7 percent.

The apparatus shall be so designed that the various parts are readily accessible for lubrication, inspection, adjustment and repair.

Where special tools manufactured or designed by the contractor and are required to provide routine service on any component of the apparatus built or supplied by the contractor, such tools shall be provided with the apparatus.

EXCEPTIONS TO SPECIFICATIONS

The following specifications shall be strictly adhered to. Exceptions shall be allowed if they are equal to or superior to that as specified and providing, they are listed and entirely explained on a separate page entitled "Exceptions to Specifications". The exceptions list to refer to specification page number and paragraph.

Proposals taking total exception to specifications or total exception to certain parts of the specifications such as Electrical Systems, Chassis, Body or Pump, will not be accepted.

Prototype units will not be acceptable. Apparatus shall be inspected upon completion for compliance with specifications.

Deviations will not be tolerated and will be cause for rejection of Apparatus unless they were originally listed in bidder’s proposal and accepted in writing by the department.

If the bidder takes an exception, on the exception page, the bidder must state an option price to bring their specifications into full compliance with the Department specifications.

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Failure to provide this information shall be cause to reject the proposal as being non-responsive.

Copied or run off sheets of these specifications shall be unacceptable, and the bid will be rejected no exceptions.

WARRANTY

Warranties applicable to the chassis and body (excluding vendor supplied components {engine, transmission, axles, etc.} which carry their own specific warranties) will be addressed by a single point warranty service provider approved by the manufacturer to perform service as necessary.

PURCHASER'S RIGHTS

The Purchaser reserves the right to accept or reject any or all bids as it deemed in their best interests.

BID/PROPOSAL DRAWING

For purposes of evaluation, Spartan shall provide a drawing illustrating, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus.

The drawings shall be large "D' size (minimum 24.00 inches x 36.00 inches).

Other specified equipment shall be required to be included with the bidder's proposal package.

PRE-CONSTRUCTION DRAWINGS

After the award of the bid, Spartan shall provide detailed colored engineering drawings including, but not limited to, the overall dimensions, wheelbase, and overall length of the proposed apparatus for use at the pre-construction conference.

The drawings shall include, but shall not be limited to the right, left, top, front and rear views of the apparatus.

In addition, a detailed engineering drawing of the pump operator's panel shall be provided prior to manufacturing for fire department approval.

SINGLE SOURCE MANUFACTURER

Spartan Fire, LLC is defined as a single source apparatus manufacturer.

Spartan designs and manufactures our products utilizing an approach that includes complete product integration, including the apparatus Chassis, Chassis Cab, Pump Module and Body Module being constructed, assembled, and tested on company facilities.

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Warranties qualified to the Chassis, Pump Module and Body Module design construction (excluding vendor component warranties such as engine, axles, transmission, and pumps, etc.) will be from Spartan Fire, LLC.

TAG-ON ORDERS-COOPERATIVE PURCHASING

Other fire departments, metropolitan regions, or municipalities may purchase apparatus and equipment similar to the Apparatus and Equipment that is the subject of this Contract. The following terms shall apply to any such tag-on orders:

(a) Changes - Spartan's intention is to make available to others, tag-on orders utilizing the same specification as the Apparatus and Equipment that is the subject of this Contract in order to provide favorable pricing and lead-times to other buyers due to having such specification fully engineered. Spartan Fire, LLC recognizes however that each additional buyer may have unique requirements that must be accommodated; and in this regard, limited changes will be permitted. Such changes will be captured in the pre-construction meeting and the price of any tag-on unit adjusted accordingly.

(b) Term – Tag-on orders may be placed for a term of one year after the Effective Date of this Contract.

(c) Escalation - Spartan Fire, LLC reserves the right to adjust the price of any tag-on order if material costs escalate during the term of this Contract, changes in regulations become effective (for example EPA, NFPA or other), or the tag-on order would cross a model year.

(d) Acceptance – Spartan Fire, LLC reserves the right to accept or reject any tag-on orders under this Contract.

FINITE ELEMENT ANALYSIS AND TESTING

Finite Element Analysis has been utilized in evaluating and engineering the critical areas of the Spartan Fire, LLC apparatus body and pump module.

Prototype bodies were subjected to rigorous testing over varied terrains simulating different environmental conditions.

The purpose of such complex engineering methods of analysis is to ensure the longevity of the design by analyzing stress levels throughout the body and pump module incorporating the structural supports wherever necessary.

There has been a minimum of three (3) different load cases (per DOT, FHWA, and TTMA recommended practice) applied and analyzed to properly display the different areas and levels of stresses that will be present under the various operating conditions of the apparatus. This is in addition to the static stress analysis. The

analysis has included the weight of the structure plus an estimate of all the components that exist on a fully loaded apparatus (i.e., tank, water, hose load, equipment in compartments, etc.).

Analysis has also been conducted on the mounting system for the apparatus body and pump module.

SUPPLIED INFORMATION & EXTRAS

There shall be two (2) hard copies of apparatus manuals with all manufactured apparatus.

The manuals shall include, but not be limited to: all component warranties, users' manuals and information for supplied products, apparatus engineering information including drawings and build prints, and whatever other pertinent information Spartan can supply to its customer regarding the said apparatus.

Included in the delivery of the unit, Spartan will also include spare hardware and extra fasteners, paint for touch-up, information regarding washing and care procedures, as well as other recommendations for care and upkeep of the general apparatus.

Spartan will also supply a manufacturer's record of apparatus construction details, including the following information:

- Owner name and address
- Spartan model and serial number
- Chassis make, model, and serial number
- GAWR of front and rear axles
- Front tire size and total rated capacity in pounds
- Rear tire size and total rated capacity in pounds
- Chassis weight distribution in pounds with water (if applicable) and Spartan mounted equipment (front and rear)
- Engine make, model, serial number, rated horsepower, related speed and no load governed speed
- Type of fuel and fuel tank capacity
- Electrical system voltage and alternator output in amps
- Battery make and model, capacity in CCA
- Paint numbers
- Weight documents from a certified scale showing actual loading on the front axle, rear axle(s), and overall vehicle (with the water tank full (if applicable) but without personnel, equipment, and hose)
- Written load analysis and results of the electrical system performance tests
- Transmission make, model, and type
- Pump to drive through the transmission (yes or no)
- Engine to pump gear ratio and transmission gear ratio used

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- Pump make and model, rated capacity in gallons per minute, serial number, and number of stages
- Pump manufacturer's certification of suction capability
- Pump manufacturer's certification of hydrostatic test
- Pump manufacturer's certification of inspection and test for the fire pump
- Copy of the apparatus manufacturer's approval for stationary pumping applications
- Pump transmission make, model and serial number
- Priming device type
- Type of pump pressure control system
- The engine manufacturer's certified brake horsepower curve for the engine furnished, showing the maximum no load governed speed
- Certification of water tank capacity

ELECTRICAL SCHEMATICS

The apparatus manufacturer shall supply one (1) set(s) as-built wiring schematics, to include all line voltage schematics with each apparatus.

WARNING AND INFORMATION LABELS

All warning and informational labels (non-vendor specific) shall be provided in compliance with (NFPA) 1901, Standard for Automotive Fire Apparatus, and installed in the appropriate locations to alert the operator of potential hazards and operating instructions.

ONLINE CUSTOMER INTERACTION

Spartan shall provide the capability for online access through the Spartan website.

The fire department shall be able to view digital photos of their apparatus in the specified phases of construction.

The following phases will be captured and displayed:

1. Chassis when available at manufacturing facility
2. Body – Prior to Paint
3. Body – Painted
4. Pump and Plumbing
5. Assembly – 80% Complete

LIABILITY INSURANCE COVERAGE

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Spartan Fire, LLC certificate of liability insurance coverage is included in this proposal, in the required amount of $10 million.

GENERAL WARRANTY

Purchaser shall receive a General Two (2) Years or 36,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0002. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

PLUMBING WARRANTY

Purchaser shall receive a Plumbing and Piping (Stainless Steel) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0800. The warranty certificate is incorporated by reference into this proposal and included with this proposal or available upon request.

THIRD PARTY PUMP CERTIFICATION AND TESTING

The apparatus upon completion will be tested and certified by an independent third-party testing company. The certification tests will follow the guidelines outlined in (NFPA) 1901, Standard for Automotive Fire Apparatus.

There shall be multiple tests performed by the contractor and the third-party testing company when the apparatus has been completed. The manufacturer shall provide the completed Test Certificate(s) to the purchaser at time of delivery.

The fire pump shall be mounted on the apparatus and shall have a minimum rated capacity of 250 gpm (1000 L/min) at 150 psi (1000 kPa) net pump pressure.

Where the apparatus is designed for pump in-motion operations, the vehicle drive engine and drive train shall be arranged so that the pump can deliver at least 20 gpm (76 L/min) at a gauge pressure of 80 psi (550 kPa), while the fire apparatus is moving.

If the pumping system provided is rated at 3000 gpm (12,000 L/min) or less, the pump shall be capable of delivering the following:

(1) One hundred percent of rated capacity at 150 psi (1000 kPa) net pump pressure

(2) Seventy percent of rated capacity at 200 psi (1400 kPa) net pump pressure

(3) Fifty percent of rated capacity at 250 psi (1700 kPa) net pump pressure

If the pumping system provided is rated at greater than 3000 gpm (12,000 L/min), the pump shall be capable of delivering the following:

(1) One hundred percent of rated capacity at 100 psi (700 kPa) net pump pressure

(2) Seventy percent of rated capacity at 150 psi (1000 kPa) net pump pressure

(3) Fifty percent of rated capacity at 200 psi (1400 kPa) net pump pressure

If the fire pump has a rated capacity of 750 gpm (3000 L/min) or greater, the pump shall be tested after the pump and all its associated piping and equipment have been installed on the apparatus.

The tests shall include at least the pumping test, the pumping engine overload test, the pressure control system test, the priming device tests, and the vacuum test.

A test plate shall be provided at the pump operator's panel that gives the rated discharges and pressures together with the speed of the engine as determined by the certification test for each unit, the position of the parallel/series pump as used, and the governed speed of the engine as stated by the engine manufacturer on a certified brake horsepower curve. The plate shall be completely stamped with all information at the factory and attached to the vehicle prior to shipping.

Pumping Test:

The test site shall be adjacent to a supply of clear water at least 4 feet (1.2 m) deep, with the water level not more than 10 feet (3 m) below the center of the pump intake, and close enough to allow the suction strainer to be submerged at least 2 feet (0.6 m) below the surface of the water when connected to the pump by 20 feet (6 m) of suction hose.

Tests shall be performed when conditions are as follows:

(1) Air temperature: 0 degrees Fahrenheit to 110 degrees Fahrenheit (−18 degrees Celsius to 43 degrees Celsius)

(2) Water temperature: 35 degrees Fahrenheit to 90 degrees Fahrenheit (2 degrees Celsius to 32 degrees Celsius)

(3) Barometric pressure: 29 inches Hg (98.2 kPa), minimum (corrected to sea level)

Engine-driven accessories shall not be functionally disconnected or rendered inoperative during the tests.

The following devices shall be permitted to be turned off or not operating during the pump test:

(1) Aerial hydraulic pump
(2) Foam pump
(3) Hydraulically driven equipment (other than hydraulically driven line voltage generator)
(4) Winch
(5) Windshield wipers
(6) Four-way hazard flashers
(7) Compressed air foam system (CAFS) compressor

All structural enclosures, such as floorboards, gratings, grilles, and heat shields, not provided with a means for opening them in service shall be kept in place during the tests.

All test gauges shall meet the requirements for Grade A gauges as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments*, and shall be at least size 3 1⁄2 per ASMEB40.100. The pump intake gauge shall have a range of 30 in. Hg (100 kPa) vacuum to zero for a vacuum gauge, or 30 in. Hg (100 kPa) vacuum to a gauge pressure of 150 psi (1000 kPa) for a compound gauge. The discharge pressure gauge shall have a gauge pressure range of 0 psi to 400 psi (0 kPa to 2800 kPa). All pilot gauges shall have a gauge pressure range of at least 0 psi to 160 psi (0 kPa to 1100 kPa). All gauges shall be calibrated in the month preceding the tests using a dead-weight gauge tester or a master gauge meeting the requirements for Grade 3A or 4A gauges, as defined in ASME B40.100, *Pressure Gauges and Gauge Attachments*, that has been calibrated within the preceding year.

The engine speed–measuring equipment shall consist of a nonadjustable tachometer supplied from the engine or transmission electronics, a revolution counter on a checking shaft outlet and a stopwatch, or other engine speed–measuring means that is accurate to within ± 50 rpm of actual speed.

If the apparatus is equipped with a fire pump rated at 750 gpm (3000 L/min) or greater but not greater than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3 hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by 1⁄2 hour of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and 1⁄2 hour of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure and shall not be stopped until after the 2 hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

If the apparatus is equipped with a fire pump rated at greater than 3000 gpm (12,000 L/min), the pump shall be subjected to a 3 hour pumping test from draft consisting of 2 hours of continuous pumping at rated capacity at 100 psi (700 kPa) net pump pressure, followed by 1⁄2 hour of continuous pumping at 70 percent of rated capacity at 150 psi (1000 kPa) net pump pressure and 1⁄2 hour of continuous pumping at 50 percent of rated capacity at 200 psi (1400 kPa) net pump pressure and shall not be stopped until after the 2 hour test at rated capacity, unless it becomes necessary to clean the suction strainer.

If the apparatus is equipped with a fire pump rated at less than 750 gpm (3000 L/min), the pump shall be subjected to a 50-minute pumping test from draft consisting of 30 minutes of continuous pumping at rated

capacity at a minimum of 150 psi (1000 kPa) net pump pressure, followed by 10 minutes of continuous pumping at 70 percent of rated capacity at a minimum of 200 psi (1400 kPa) net pump pressure and 10 minutes of continuous pumping at 50 percent of rated capacity at a minimum of 250 psi (1700 kPa) net pump pressure and shall not be stopped until after the 30-minute test at rated capacity, unless it becomes necessary to clean the suction strainer.

Pumping Engine Overload Test:

If the pump has a rated capacity of 750 gpm (3000 L/min) or greater but not greater than 3000 gpm (12,000 L/min), the apparatus shall be subjected to an overload test consisting of pumping rated capacity at 165 psi (1100 kPa) net pump pressure for at least 10 minutes.

This test shall be performed immediately following the pumping test of rated capacity at 150 psi (1000 kPa).

The capacity, discharge pressure, intake pressure, and engine speed shall be recorded at least three times during the overload test.

Pressure Control System Test:

If the pump is rated at 3000 gpm (12,000 L/min) or less, the pressure control system on the pump shall be tested as follows:

(1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 150 psi (1000 kPa).

(2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 150 psi (1000 kPa) ±5 percent.

(3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(4) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

(5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be reestablished.

(6) The discharge pressure gauge shall be reduced to 90 psi (620 kPa) by throttling the engine fuel supply, with no change to the discharge valve settings, hose, or nozzles.

(7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 90 psi (620 kPa) ±5 percent.

(8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

(10) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 250 psi (1700 kPa).

(11) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 250 psi (1700 kPa) ±5 percent.

(12) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(13) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

If the pump is rated at greater than 3000 gpm (12,000 L/min), the pressure control system on the pump shall be tested as follows:

(1) The pump shall be operated at draft, delivering rated capacity at a discharge gauge pressure of 100 psi (700 kPa).

(2) The pressure control system shall be set in accordance with the manufacturer's instructions to maintain the discharge gauge pressure at 100 psi (700 kPa) ±5 percent.

(3) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(4) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

(5) The original conditions of pumping rated capacity at a discharge gauge pressure of 150 psi (1000 kPa) shall be reestablished.

(6) The pump shall be operated at draft, pumping 50 percent of rated capacity at a discharge gauge pressure of 200 psi (1400 kPa).

(7) The pressure control system shall be set according to the manufacturer's instructions to maintain the discharge gauge pressure at 200 psi (1400 kPa) ±5 percent.

(8) All discharge valves shall be closed not more rapidly than in 3 seconds and not more slowly than in 10 seconds.

(9) The rise in discharge pressure shall not exceed 30 psi (200 kPa) and shall be recorded.

Priming System Tests:

With the apparatus set up for the pumping test, the primer shall be operated in accordance with the manufacturer's instructions until the pump has been primed and is discharging water. This test shall be permitted to be performed in connection with priming the pump for the pumping test.

The interval from the time the primer is started until the time the pump is discharging water shall be noted. The time required to prime the pump shall not exceed 30 seconds if the rated capacity is 1250 gpm (5000 L/min) or less. The time required to prime the pump shall not exceed 45 seconds if the rated capacity is 1500 gpm (6000 L/min) or more.

An additional 15 seconds shall be permitted in order to meet the requirements of 16.13.5.3 and 16.13.5.4 when the pump system includes an auxiliary 4 inches (100 mm) or larger intake pipe having a volume of 1 foot^3 (0.30 m^3) or more.

Vacuum Test:

The vacuum test shall consist of subjecting the interior of the pump, with all intake valves open, capped or plugged, and all discharge caps removed, to a vacuum of 22 inches/Hg (75 kPa) by means of the pump priming system.

At altitudes above 2000 feet (600 m), the vacuum attained shall be permitted to be less than 22 inches/Hg (75 kPa) by 1 inch/Hg (3.4 kPa) for each 1000 feet (305 m) of altitude above 2000 feet (610 m).

The vacuum shall not drop more than 10 inches/Hg (34 kPa) in 5 minutes.

The primer shall not be used after the 5 minute test period has begun and the engine shall not be operated at any speed greater than the governed speed during this test.

Water Tank–to–Pump Flow Test:

A water tank–to–pump flow test shall be conducted as follows:

(1) The water tank shall be filled until it overflows.

(2) All intakes to the pump shall be closed.

(3) The tank fill line and bypass cooling line shall be closed.

(4) Hose lines and nozzles for discharging water at the rated tank-to-pump flow rate shall be connected to one or more discharge outlets.

(5) The tank-to-pump valve(s) and the discharge valves leading to the hose lines and nozzles shall be fully opened.

(6) The engine throttle shall be adjusted until the required flow rate −0/+5 percent is established.

(7) The discharge pressure shall be recorded.

(8) The discharge valves shall be closed, and the water tank refilled.

(9) The bypass line shall be permitted to be opened temporarily, if needed, to keep the water temperature in the pump within acceptable limits.

(10) The discharge valves shall be reopened fully, and the time noted.

(11) If necessary, the engine throttle shall be adjusted to maintain the discharge pressure recorded as noted in 16.13.7.1(7).

(12) When the discharge pressure drops by 10 psi (70 kPa) or more, the time shall be noted and the elapsed time from the opening of the discharge valves shall be calculated and recorded.

Volume Discharge Calculation:

The volume discharged shall be calculated by multiplying the rate of discharge in gallons per minute (liters per minute) by the time in minutes elapsed from the opening of the discharge valves until the discharge pressure drops by at least 10 psi (70 kPa).

Other means shall be permitted to be used to determine the volume of water pumped from the tank such as a totalizing flowmeter, weighing the truck before and after, or refilling the tank using a totalizing flowmeter.

The rated tank-to-pump flow rate shall be maintained until 80 percent of the rated capacity of the tank has been discharge.

Engine Speed Advancement Interlock Test

The engine speed advancement interlock system shall be tested to verify that engine speed cannot be increased at the pump operator's panel unless there is throttle-ready indication.

If the apparatus is equipped with a stationary pump driven through split-shaft PTO, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when either of the following conditions exists:

(6) The chassis transmission is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.

(7) The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

If the apparatus is equipped with a stationary pump driven through a transmission mounted PTO, front-of-engine crankshaft PTO, or engine flywheel PTO, the test shall verify that the engine speed control on the pump operator's panel cannot be advanced when either of the following conditions exists:

(1) The chassis transmission is in neutral, the parking brake is off, and the pump shift status in the driving compartment is disengaged.
(2) The chassis transmission is in any other gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the "Pump Engaged" position.

If the apparatus is equipped with a pump driven by the chassis engine designed for both stationary pumping and pump-in-motion, the test shall verify that the engine speed control at pump operator's panel cannot be advanced when either of the following conditions exists:

(1) The chassis transmission is in neutral, the parking brake is on, and the pump shift status in the driving compartment is disengaged.
(2) The chassis transmission is in any other gear other than neutral, the parking brake is on, and the pump shift in the driving compartment is in the "Pump Engaged" or the "OK to Pump In-Motion" position.

If the apparatus is equipped with a stationary pump driven through transfer case PTO, the test shall verify that the engine speed control on the pump operator's panel cannot be advanced when either of the following conditions exists:

(1) The chassis transmission is in neutral, the transfer case is in neutral, the parking brake is off, and the pump shift in the driving compartment is in the road position.
(2) The chassis transmission is in neutral, the transfer case is engaged, the parking brake is off, and the pump shift in the driving compartment is in the road position.

(3) The chassis transmission has been placed in the position for pumping as indicated on the label provided in the driving compartment, the parking brake is on, and the pump shift in the driving compartment is in the road position.

LOW-VOLTAGE ELECTRICAL SYSTEM PERFORMANCE TESTING

The apparatus low-voltage electrical system will be tested and certified. Tests shall be performed when the air temperature is between 0 degrees Fahrenheit and 110 degrees Fahrenheit (–18 degrees Celsius and 43 degrees Celsius). The three tests defined in NFPA shall be performed in the order in which they appear. Before each test, the batteries shall be fully charged until the voltage stabilizes at the voltage regulator set point and the lowest charge current is maintained for 10 minutes. Failure of any of these tests shall require a repeat of the sequence.

Reserve Capacity Test:

The engine shall be started and kept running until the engine and engine compartment temperatures are stabilized at normal operating temperatures and the battery system is fully charged.

The engine shall be shut off and the minimum continuous electrical load shall be activated for 10 minutes.

All electrical loads shall be turned off prior to attempting to restart the engine. The battery system shall then be capable of restarting the engine. Failure to restart the engine shall be considered a test failure of the battery system.

Alternator Performance Test at Idle:

The minimum continuous electrical load shall be activated with the engine running at idle speed.

The engine temperature shall be stabilized at normal operating temperature.

The battery system shall be tested to detect the presence of battery discharge current. The detection of battery discharge current shall be considered a test failure.

Alternator Performance Test at Full Load:

The total continuous electrical load shall be activated with the engine running up to the engine manufacturer’s governed speed.

The test duration shall be a minimum of 2 hours.

Activation of the load management system shall be permitted during this test.

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An alarm sounded by excessive battery discharge, as detected by the system required in NFPA 13.3.4, or a system voltage of less than 11.8 V dc for a 12 V nominal system or 23.6 V dc for a 24 V nominal system, for more than 120 seconds, shall be considered a test failure.

Low Voltage Alarm Test:

Following the above test, a Low Voltage Alarm Test will be performed in the manner prescribed.

With the engine shut off, the total continuous electrical load shall be activated and shall continue to be applied until the excessive battery discharge alarm activates.

The battery voltage shall be measured at the battery terminals.

The test shall be considered a failure if the alarm has not yet sounded 140 seconds after the voltage drops to 11.70V for a 12 V nominal system or 23.4 V for a 24 V nominal system.

The battery system shall then be able to restart the engine. Failure to restart the engine shall be considered a test failure.

FACTORY PRE-CONSTRUCTION CONFERENCE

The factory authorized Distributor shall be required, prior to manufacturing, to have a pre-construction conference at the manufacturing facility with a factory representative present and with Three (3) individual(s) from the North Topsail Beach Fire Department to finalize all construction details.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

FINAL INSPECTION CONFERENCE

The factory authorized Distributor shall be required, during manufacturing, to have a final completion inspection conference at the site of the manufacturing facility with Three (3) individuals from the North Topsail Beach Fire Department to inspect the apparatus after construction.

The factories authorized distributor shall, at his expense, provide transportation, lodging, and meals. Any distance greater than 200 miles shall be by commercial air travel.

MAXIMUM OVERALL LENGTH REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum overall length.

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MAXIMUM OVERALL HEIGHT REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum overall height.

MAXIMUM OVERALL WIDTH OF NINETY-NINE (99) INCHES

The apparatus specified shall be constructed as detailed and shall NOT exceed a Maximum Overall Width of Ninety-nine (99.00) inches.

This dimension shall include the primary construction of the apparatus body and chassis cab. Any peripheral items shall not be incorporated into this measurement.

The items included, but not limited to, are: Rub Rails, Fenderettes, Mirrors, Lights, Handrails, Front Bumpers, Cab Steps, Overlays, Etc.

MAXIMUM WHEELBASE REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum wheelbase.

MAXIMUM WHEELBASE REQUIREMENT

The apparatus specified shall be constructed with no restrictions to the maximum wheelbase.

METROSTAR CHASSIS SPECIFICATION

MODEL

The chassis shall be a Metro Star model. The cab and chassis shall include design considerations for multiple emergency vehicle applications, rapid transit and maneuverability. The chassis shall be manufactured for heavy duty service with the strength and capacity to support a fully laden apparatus, one hundred (100) percent of the time.

COUNTRY OF SERVICE

The chassis shall be put in service in the country of United States of America (USA).

The chassis will meet applicable U.S.A. federal motor vehicle safety standards per CFR Title 49 Chapter V Part 571 as clarified in the incomplete vehicle book per CFR Title 49 Chapter V Part 568 Section 4 which accompanies each chassis. The chassis manufacturer is not responsible for compliance to state, regional, or

local regulations. Dealers should identify those regulations and order any necessary optional equipment from the chassis manufacturer or their OEM needed to be in compliance with those regulations.

CAB AND CHASSIS LABELING LANGUAGE

The cab and chassis shall include the applicable caution, warning, and safety notice labels with text to be written in English. All applicable caution, warning, and safety notice labels shall be Innovative Controls brand. Where applicable to the location within the specific layout and label package of the cab and chassis, the labels shall include decorative chrome bezels. Designs shall include bezels that fit individual labels or packaged configurations of labels in certain common locations.

The following labels shall be Innovative Controls brand, each including a decorative chrome bezel (where applicable):

- Shoreline
- Aerial Stowed
- Aerial Breakers 2
- Air Conditioner
- Cab Tilt Plate
- Air Compressor Breaker
- Battery Conditioner Breaker
- Helmet Caution
- Horn Tag
- Q2B Tag
- Load Center Plate
- Not a Step Label
- Occupancy Tag
- Do Not Move
- Occupants Must Be Seated
- Do Not Stand
- Danger Do Not Weld
- Danger--Untrained Operator
- DEF Fill Access (Including Additional 2907 Optional Labels)
- Battery Direct
- Kneeling
- IFS Air Fault
- Engine Brake
- Retarder
- LR 100 Amp Node
- 300 Amp EPU

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- 100 Amp Front O/R Node
- 100 Amp T/T Node
- 100 Amp RR O/R Node
- 10 Amp EPU
- Master Power
- 12 Volt Power
- Aerial Hours
- Pump In Drive
- Windshield Washer Fluid

APPARATUS TYPE

The apparatus shall be a pumper vehicle designed for emergency service use which shall be equipped with a permanently mounted fire pump which has a minimum rated capacity of 750 gallons per minute (3000 L/min). The apparatus shall include a water tank and hose body whose primary purpose is to combat structural and associated fires.

VEHICLE TYPE

The chassis shall be manufactured for use as a straight truck type vehicle and designed for the installation of a permanently mounted apparatus behind the cab. The apparatus of the vehicle shall be supplied and installed by the apparatus manufacturer.

VEHICLE ANGLE OF APPROACH PACKAGE

The angle of approach of the apparatus shall be a minimum of 8.00 degrees.

NFPA1901 Angle of Approach definition:
"To determine the angle of approach, place a thin steel strip against the front of the tires where they touch the ground or stretch a tight string from one front tire to the other at the front where they touch the ground. Determine the lowest point (component or equipment) on the vehicle forward of the front tire that would make the smallest angle of approach. Hang a plumb bob from the lowest point and mark the point on the ground where the point of the plumb bob touches. Measure the vertical distance from the ground to the point where the plumb bob was hung (distance *V*). Measure the horizontal distance from the plumb bob point to the steel strip or string running from front tire to front tire (distance *H*). Divide the vertical distance by the horizontal distance. The ratio of *V/H* is the tangent of the angle of approach. If the ratio is known, the angle of approach can be determined from a table of trigonometric functions of angles or from a math calculator. The standard requires a minimum angle of approach of 8.00 degrees: since the tangent of 8.00 degrees is 0.1405, if *V* divided by *H* is 0.1405 or larger, the angle of approach is 8.00 degrees or greater."

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AXLE CONFIGURATION

The chassis shall feature a 4 x 2 axle configuration consisting of a single rear drive axle with a single front steer axle.

GROSS AXLE WEIGHT RATINGS FRONT

The front gross axle weight rating (GAWR) of the chassis shall be 21,500 pounds.

This front gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

GROSS AXLE WEIGHT RATINGS REAR

The rear gross axle weight rating (GAWR) of the chassis shall be 31,500 pounds.

This rear gross axle weight rating shall be adequate to carry the weight of the completed apparatus including all equipment and personnel.

PUMP PROVISION

The chassis shall include provisions to mount a drive line pump in the middle of the chassis, behind the cab, more commonly known as the midship location. Chassis driveline pump provisions shall include an interlock feature for automatic setting of the park brake when the vehicle is shifted into pump mode while the transmission is in neutral and the transmission output speed translates to less than 1 mph. When the conditions are met the driver side parking brake valve shall activate. Once shifted to road mode the condition for electric automatic brake engagement is no longer present and the driver's parking brake control valve shall function normally.

WATER & FOAM TANK CAPACITY

The chassis shall include a carrying capacity of 1501 gallons (5681 liters) to 2200 gallons (8327 liters). The water and/or foam tank(s) shall be supplied and installed by the apparatus manufacturer.

CAB STYLE

The cab shall be a custom, fully enclosed, EMFD model with a 10.00 inch raised roof over the driver, officer, and crew area, designed and built specifically for use as an emergency response vehicle by a company specializing in cab and chassis design for all emergency response applications. The cab shall be designed for heavy-duty service utilizing superior strength and capacity for the application of protecting the occupants of the vehicle. This style of cab shall offer up to eight (8) seating positions.

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The cab shall incorporate a fully enclosed design with side wall roof supports, allowing for a spacious cab area with no partition between the front and rear sections of the cab. To provide a superior finish by reducing welds that fatigue cab metal; the roof, the rear wall and side wall panels shall be assembled using a combination of welds and proven industrial adhesives designed specifically for aluminum fabrication for construction.

The cab shall be constructed using multiple aluminum extrusions in conjunction with aluminum plate, which shall provide proven strength and the truest, flattest body surfaces ensuring less expensive paint repairs if needed. All aluminum welding shall be completed to the American Welding Society and ANSI D1.2-96 requirements for structural welding of aluminum.

All interior and exterior seams shall be sealed for optimum noise reduction and to provide the most favorable efficiency for heating and cooling retention.

The cab shall be constructed of 5052-H32 corrosion resistant aluminum plate. The cab shall incorporate tongue and groove fitted 6061-T6 0.13 & 0.19 inch thick aluminum extrusions for extreme duty situations. A single formed, one (1) piece extrusion shall be used for the “A” pillar, adding strength and rigidity to the cab as well as additional roll-over protection. The cab side walls and lower roof skin shall be 0.13 inch thick; the rear wall and raised roof skins shall be 0.09 inch thick; the front cab structure shall be 0.19 inch thick.

The exterior width of the cab shall be 94.00 inches wide with a minimum interior width of 88.00 inches. The overall cab length shall be 137.10 inches with 60.00 inches from the centerline of the front of the axle to the back of the cab.

The cab interior shall be designed to afford the maximum usable interior space and attention to ergonomics with hip and legroom while seated which exceeds industry standards. The crew cab floor shall be flat across the entire walking area for ease of movement inside the cab.

The cab shall offer an interior height of 57.50 inches from the front floor to the headliner and a rear floor to headliner height of 65.00 inches in the raised roof area, at a minimum. The cab shall offer an interior measurement at the floor level from the rear of the engine tunnel to the rear wall of the cab of 57.88 inches. All interior measurements shall include the area within the interior trimmed surfaces and not to any unfinished surface.

The cab shall include a driver and officer area with two (2) cab doors large enough for personnel in full firefighting gear. The front doors shall offer a clear opening of 40.25 inches wide X 53.50 inches high, from the cab floor to the top of the door opening. The cab shall also include a crew area with up to two (2) cab doors, also large enough for personnel in full firefighting gear. The rear doors shall offer a clear opening of 32.25 inches wide X 61.00 inches high, from the cab floor to the top of the door opening.

The cab shall incorporate a progressive two (2) step configuration from the ground to the cab floor at each door

opening. The progressive steps are vertically staggered and extend the full width of each step well allowing personnel in full firefighting gear to enter and exit the cab easily and safely.

The first step for the driver and officer area shall measure approximately 11.50 inches deep X 31.13 inches wide. The intermediate step shall measure approximately 8.50 inches deep X 32.50 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 11.00 inches.

The first step for the crew area shall measure approximately 11.50 inches deep X 20.44 inches wide. The intermediate step shall measure approximately 10.25 inches deep X 22.75 inches wide. The height from the first step to the intermediate step and the intermediate step to the cab floor shall not exceed 12.80 inches.

CAB FRONT FASCIA

The front cab fascia shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate which shall be an integral part of the cab.

The cab fascia will encompass the entire front of the aluminum cab structure from the bottom of the windshield to the bottom of the cab and shall be the “Classic” design.

The front cab fascia shall include two (2) molded plastic modules on each side accommodating a total of up to four (4) Hi/Low beam headlights and two (2) turn signal lights or up to four (4) warning lights. A gloss black painted molded plastic bezel shall be provided on each side around each set of four lamps.

FRONT GRILLE

The front fascia shall include a box style, 304 stainless steel front grille 44.45 inches wide X 33.50 inches high X 1.50 inches deep. The grille shall include a minimum free air intake of 732.00 square inches. The upper portion of the grille shall be hinged to provide service access behind the grille. The grille shall be painted gloss black.

CAB UNDERCOAT

There shall be a rubberized undercoating applied to the underside of the cab that provides abrasion protection, sound deadening and corrosion protection.

CAB SIDE DRIP RAIL

There shall be a drip rail along the top radius of each cab side. The drip rails shall help prevent water from the cab roof running down the cab side.

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CAB PAINT EXTERIOR

The cab shall be painted prior to the installation of glass accessories and all other cab trim to ensure complete paint coverage and the maximum in corrosion protection of all metal surfaces.

All metal surfaces on the entire cab shall be ground by disc to remove any surface oxidation or surface debris which may hinder the paint adhesion. Once the surface is machine ground a high quality acid etching of base primer shall be applied. Upon the application of body fillers and their preparation, the cab shall be primed with a coating designed for corrosion resistance and surface paint adhesion. The maximum thickness of the primer coat shall be 2.00 mils.

The entire cab shall then be coated with an intermediate solid or epoxy surfacing agent that is designed to fill any minor surface defects, provide an adhesive bond between the primer and the paint and improve the color and gloss retention of the color. The finish to this procedure shall be a sanding of the cab with 360 grit paper followed by sealing the seams with SEM brand seam sealer.

The cab shall then be painted the specific color designated by the customer with an acrylic urethane type system designed to retain color and resist acid rain and most atmospheric chemicals found on the fire ground or emergency scene. The paint shall have a minimum thickness of 2.00 mils, followed by a clear top coat not to exceed 2.00 mils. The entire cab shall then be baked at 180 degrees for one (1) hour to speed the curing process of the coatings.

CAB PAINT MANUFACTURER

The cab shall be painted with Sikkens paint.

CAB PAINT PRIMARY/LOWER COLOR

The primary/lower paint color shall be:

CAB PAINT SECONDARY/UPPER COLOR

The secondary/upper paint color shall be:

CAB PAINT EXTERIOR BREAKLINE

The upper and lower paint shall meet at a breakline on the cab which shall be located approximately 1.00 inch below the door windows on each side of the cab. The breakline shall curve down at the front cab corners to approximately 5.00 inches below the windshields on the front of the cab.

CAB PAINT PINSTRIPE

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Where the upper and lower paint colors meet a temporary 0.50 inch wide black pinstripe shall be applied over this break line to offer a more finished look prior to the final pinstripe being installed by the OEM.

CAB PAINT WARRANTY

Purchaser shall receive a Paint and Finish (Exterior Clear coated) Ten (10) Years limited warranty in accordance with, and subject to, warranty certificate RFW0710. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

CAB PAINT INTERIOR

The visible interior cab structure surfaces shall be painted with a multi-tone onyx black texture finish.

CAB ENTRY DOORS

The cab shall include four (4) entry doors, two (2) front doors and two (2) crew doors designed for ease of entering and egress when outfitted with an SCBA. The doors shall be constructed of extruded aluminum with a nominal thickness of 0.13 inch. The exterior skins shall be constructed of 0.13 inch aluminum plate.

The doors shall include a double rolled style automotive rubber seal around the perimeter of each door frame and door edge which ensures a weather tight fit.

All door hinges shall be hidden within flush mounted cab doors for a pleasing smooth appearance and perfect fit along each side of the cab. Each door hinge shall be piano style with a 0.38 inch pin and shall be constructed of stainless steel.

CAB ENTRY DOOR TYPE

All cab entry doors shall be barrier clear design resulting in exposed lower cab steps. The doors shall provide approximately 32.00 inches of clearance from the ground to the bottom of the door so cab doors may be opened un-hindered by most obstacles encountered, such as guard rails along interstate highways.

Entry doors shall include Pollak mechanical plunger style switches for electrical component activation.

CAB INSULATION

The cab ceiling and walls shall include a nonwoven polyester fiber insulation. The insulation shall act as a barrier absorbing noise as well as assisting in sustaining the desired climate within the cab interior.

LH MID EMS COMPARTMENT

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The cab shall include a compartment located in the middle of the wall above the left side wheel well. This compartment shall measure 17.00 inches wide X 43.00 inches high X 23.00 inches deep.

LH MID EMS COMPARTMENT INTERIOR

The cab compartment located in the middle of the wall above the left side wheel well shall include solid aluminum walls with an interior access point rear facing. This compartment shall be finished to customer specification.

LH MID EMS COMPARTMENT INTERIOR ACCESS

The left hand EMS compartment shall include access from inside the cab. The compartment shall be accessible from the inside of the cab via a cargo net covered provision that shall include side-release buckle assemblies at the bottom. The interior access provision shall feature a clear opening of 14.50 inches wide and as tall as possible in the available customer specified left EMS compartment height and access point.

LH MID EMS COMPARTMENT INTERIOR SHELVING

The left hand mid EMS compartment located in crew area of the cab shall include one (1) aluminum shelf which shall be secured using Unistrut channel on two (2) sides of the interior walls of the compartment. The shelf shall include a 1.00 inch lip around the edges. The shelf shall be finished the same as the interior of the compartment.

RH MID EMS COMPARTMENT

The cab shall include a compartment located in the middle of the wall above the right side wheel well. This compartment shall measure 17.00 inches wide X 43.00 inches high X 23.00 inches deep.

RH MID EMS COMPARTMENT INTERIOR

The cab compartment located in the middle of the wall above the right side wheel well shall include solid aluminum walls with an interior access point rear facing. This compartment shall be finished to customer specification.

RH MID EMS COMPARTMENT INTERIOR ACCESS

The right hand EMS compartment shall include access from inside the cab. The compartment shall be accessible from the inside of the cab via a cargo net covered provision that shall include side-release buckle assemblies at the bottom. The interior access provision shall feature a clear opening of 14.50 inches wide and as tall as possible in the available customer specified right EMS compartment height and access point.

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RH MID EMS COMPARTMENT INTERIOR SHELVING

The right hand mid EMS compartment located in crew area of the cab shall include one (1) aluminum shelf which shall be secured using Unistrut channel on two (2) sides of the interior walls of the compartment. The shelf shall include a 1.00 inch lip around the edges. The shelf shall be finished the same as the interior of the compartment.

MID EMS COMPARTMENT LIGHTING

The interior portion of each of the mid EMS compartments shall include rear crew cab door activated LED lighting to illuminate all usable surfaces within each compartment.

MID EMS COMPARTMENT EXTERIOR FINISH

The mid EMS compartment surfaces that are exposed to the interior of the cab shall be painted with a multi-tone onyx black texture finish.

MID EMS COMPARTMENT INTERIOR FINISH

The interior of the mid EMS compartment shall be painted with a multi-tone onyx black texture finish.

CAB STRUCTURAL WARRANTY

Purchaser shall receive a Cab Structure (Aluminum) Ten (10) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0602. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

CAB TEST INFORMATION

The cab shall have successfully completed the preload side impact, static roof load application and frontal impact without encroachment to the occupant survival space when tested in accordance with Section 4 of SAE J2420 COE Frontal Strength Evaluation Dynamic Loading Heavy Trucks, Section 5 of SAE J2422 Cab Roof Strength Evaluation Quasi –Static Loading Heavy Trucks and ECE R29 Uniform Provisions Concerning the Approval of Vehicles with regard to the Protection of the Occupants of the Cab of a Commercial Vehicles Annex 3 Paragraph 5.

The above tests have been witnessed by and attested to by an independent third party. The test results were recorded using cameras, high speed imagers, accelerometers and strain gauges. Documentation of the testing shall be provided upon request.

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ELECTRICAL SYSTEM

The chassis shall include a single starting electrical system which shall include a 12 volt direct current multiplexing system, suppressed per SAE J551. The wiring shall be appropriate gauge cross link with 311 degree Fahrenheit insulation. All SAE wires in the chassis shall be color coded and shall include the circuit number and function where possible. The wiring shall be protected by 275 degree Fahrenheit minimum high temperature flame retardant loom. All nodes and sealed Deutsch connectors shall be waterproof.

MULTIPLEX DISPLAY

The multiplex electrical system shall include a Weldon Vista IV display which shall be located on the left side of the dash in the switch panel. The Vista IV shall feature a full color LCD display screen which includes a message bar displaying the time of day and important messages requiring acknowledgement by the user which shall all be displayed on the top of the screen in the order they are received. There shall be eight (8) push button virtual controls, four (4) on each side of the display for the on-board diagnostics. The display screen shall be video ready for back-up cameras, thermal cameras, and DVD.

The Vista IV display shall offer varying fonts and background colors. The display shall be fully programmable to the needs of the customer and shall offer virtually infinite flexibility for screen configuration options.

LOAD MANAGEMENT SYSTEM

The apparatus load management shall be performed by the included multiplex system. The multiplex system shall also feature the priority of sequences and shall shed electrical loads based on the priority list specifically programmed.

DATA RECORDING SYSTEM

The chassis shall have a Weldon Vehicle Data Recorder (VDR) system installed. The system shall be designed to meet NFPA 1901 and shall be integrated with the Weldon Multiplex electrical system. The following information shall be recorded:

- Vehicle Speed
- Acceleration
- Deceleration
- Engine Speed
- Engine Throttle Position
- ABS Event
- Seat Occupied Status
- Seat Belt Status

- Master Optical Warning Device Switch Position
- Time
- Date

Each portion of the data shall be recorded at the specified intervals and stored for the specified length of time to meet NFPA 1901 guidelines and shall be retrievable by connecting a laptop computer to the VDR system. The laptop connection shall be a panel mounted female type B USB connection point, remotely mounted in the left side foot well.

ACCESSORY POWER

The electrical distribution panel shall include two (2) power studs. The studs shall be size #10 and each of the power studs shall be circuit protected with a fuse of the specified amperage. One (1) power stud shall be capable of carrying up to a 40 amp battery direct load. One (1) power stud shall be capable of carrying up to a 15 amp ignition switched load. The two (2) power studs shall share one (1) #10 ground stud.

An OEM body connections bracket shall be installed on the chassis near the left hand battery box. The bracket shall include one (1) set each of 200 amp master power switched and 300 amp battery direct fused power and ground studs.

AUXILIARY ACCESSORY POWER

An auxiliary set of power and ground studs shall be provided and installed in the officer side under seat storage compartment. The power and ground studs shall be circuit protected with a 40 amp breaker. The studs shall be 0.38 inch diameter and be capable of carrying up to a 40 amp battery direct load.

ADDITIONAL ACCESSORY POWER

An additional six (6) position Blue Sea Systems 5025 blade type fuse panel shall be installed on the side wall of the engine tunnel behind the officer's seat. The fuse panel shall be protected by a 40 amp fuse. The panel shall be capable of carrying up to a maximum 40 amp battery direct load. An additional 4.00 feet of wire shall be provided for use by the apparatus builder.

EXTERIOR ELECTRICAL TERMINAL COATING

All terminals exposed to the elements will be sprayed with a high visibility protective rubberized coating to prevent corrosion.

ELECTRICAL SYSTEM WARRANTY

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Purchaser shall receive an Electrical System Two (2) Years or 36,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0202. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

ENGINE

The chassis engine shall be a Cummins L9 engine. The L9 engine shall be an in-line six (6) cylinder, four cycle diesel powered engine. The engine shall offer a rating of 450 horse power at 2100 RPM and shall be governed at 2200 RPM. The torque rating shall feature 1250 foot pounds of torque at 1200 RPM with 543 cubic inches (8.9 liters) of displacement.

The L9 engine shall feature a VGT™ Turbocharger, a high pressure common rail fuel system, fully integrated electronic controls with an electronic governor, and shall be EPA certified to meet the 2021 emissions standards using cooled exhaust gas recirculation and selective catalytic reduction technology.

The engine shall include an engine mounted combination full flow/by-pass oil filter with replaceable spin on cartridge for use with the engine lubrication system. The engine shall include Citgo brand Citgard 500, or equivalent SAE 15W40 CK-4 low ash engine oil which shall be utilized for proper engine lubrication.

A wiring harness shall be supplied ending at the back of the cab. The harness shall include a connector which shall allow an optional harness for the pump panel. The included circuits shall be provided for a tachometer, oil pressure, engine temperature, hand throttle, high idle and a PSG system. A circuit for J1939 data link shall also be provided at the back of the cab.

CAB ENGINE TUNNEL

The cab interior shall include an integrated engine tunnel constructed of 5052-H32 Marine Grade, 0.19 of an inch thick aluminum. The tunnel shall be a maximum of 41.50 inches wide X 25.50 inches high.

DIESEL PARTICULATE FILTER CONTROLS

There shall be two (2) controls for the diesel particulate filter. One (1) control shall be for regeneration and one (1) control shall be for regeneration inhibit.

ENGINE PROGRAMMING HIGH IDLE SPEED

The engine high idle control shall maintain the engine idle at approximately 1250 RPM when engaged.

ENGINE HIGH IDLE CONTROL

The vehicle shall be equipped with a virtual Vista button and an automatic high-idle speed control. It shall be

pre-set so when activated, it will operate the engine at the appropriate RPM to increase alternator output. This device shall operate only when the engine is running and the transmission is in neutral with the parking brake set. The device shall disengage when the operator depresses the brake pedal, or the transmission is placed in gear, and shall be available to manually or automatically re-engage when the brake is released, or when the transmission is placed in neutral. There shall be an indicator on the Vista display and control screen for the high idle speed control.

ENGINE PROGRAMMING ROAD SPEED GOVERNOR

The engine shall include programming which will govern the top speed of the vehicle.

AUXILIARY ENGINE BRAKE

A compression brake, for the six (6) cylinder engine shall be provided. A cutout relay shall be installed to disable the compression brake when in pump mode or when an ABS event occurs. The engine compression brake shall activate upon 0% accelerator when in operation mode and actuate the vehicle's brake lights.

The engine shall utilize a variable geometry turbo (VGT) as an integrated auxiliary engine brake to offer a variable rate of exhaust flow, which when activated in conjunction with the compression brake shall enhance the engine's compression braking capabilities.

AUXILIARY ENGINE BRAKE CONTROL

An engine compression brake control device shall be included. The electronic control device shall monitor various conditions and shall activate the engine brake only if all of the following conditions are simultaneously detected:

- A valid gear ratio is detected.
- The driver has requested or enabled engine compression brake operation.
- The throttle is at a minimum engine speed position.
- The electronic controller is not presently attempting to execute an electronically controlled final drive gear shift.

The compression brake shall be controlled via an off/low/medium/high virtual button on the Vista display and control screen. The multiplex system shall remember and default to the last engine brake control setting when the vehicle is shut off and re-started.

ELECTRONIC ENGINE OIL LEVEL INDICATOR

The engine oil shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal. The warning shall activate in a low oil situation upon turning on the

master battery and ignition switches without the engine running.

FLUID FILLS

The front of the chassis shall accommodate fluid fill for the engine oil through the grille. This area shall also accommodate a check for the engine oil. The transmission, power steering, and coolant fluid fills and checks shall be under the cab. The windshield washer fill shall be accessible through the front left side mid step.

ENGINE DRAIN PLUG

The engine shall include an original equipment manufacturer installed oil drain plug.

ENGINE WARRANTY

The Cummins engine shall be warranted for a period of five (5) years or 100,000 miles, whichever occurs first.

REMOTE THROTTLE HARNESS

An apparatus interface wiring harness for the engine shall be supplied with the chassis. The harness shall include a connector for connection to the chassis harness which shall terminate in the left frame rail behind the cab for reconnection by the apparatus builder. The harness shall contain connectors for a FRC Pump Boss pressure governor and a multiplexed gauge. Separate circuits shall be included for pump controls, "Pump Engaged" and "OK to Pump" indicator lights, open compartment ground, start signal, park brake ground, ignition signal, master power, customer ignition, air horn solenoid switch, high idle switch and high idle indication light. The harness shall contain interlocks that will prevent shifting to road or pump mode unless the transmission output speed translates to less than 1 mph and the transmission is in neutral. The shift to pump mode shall also require the park brake be set. The harness shall be designed for a side mount pump panel.

An apparatus interface wiring harness shall also be included which shall be wired to the cab harness interface connectors and shall incorporate circuits with relays to control pump functions. This harness shall control the inputs for the transmission lock up circuits, governor/hand throttle controls and dash display which shall incorporate "Pump Engaged" and "OK to Pump" indicator lights. The harness shall contain circuits for the apparatus builder to wire in a pump switch.

ENGINE PROGRAMMING REMOTE THROTTLE

The engine ECM (Electronic Control Module) discreet wire remote throttle circuit shall be turned off for use with a J1939 based pump controller or when the discreet wire remote throttle controls are not required.

ENGINE PROGRAMMING IDLE SPEED

The engine low idle speed will be programmed at 700 rpm.

ENGINE AIR INTAKE

The engine air intake system shall include an ember separator. This ember separator shall be designed to protect the downstream air filter from embers using a combination of unique flat and crimped metal screens packaged in a heavy duty galvanized steel frame. This multilayered screen shall trap embers and allow them to burn out before passing through the pack.

The engine air intake system shall also include an air cleaner mounted above the radiator. This air cleaner shall utilize a replaceable dry type filter element designed to prevent dust and debris from being ingested into the engine. A service cover shall be provided on the housing, reducing the chance of contaminating the air intake system during air filter service.

The air intake system shall include a restriction indicator light in the warning light cluster on the instrument panel, which shall activate when the air cleaner element requires replacement.

ENGINE FAN DRIVE

The engine cooling system fan shall incorporate a thermostatically controlled, Horton fully variable type fan drive with SmartClutch J-1939 CAN controller.

The variable speed fan clutch only engages at the amount needed for proper cooling to facilitate improved vehicle performance, cab heating in cold climates, and fuel economy. The fan clutch design shall be fail-safe so that if the clutch drive fails the fan shall engage to prevent engine overheating due to the fan clutch failure. The fan speed shall include a J-1939 CAN clutch controller to receive signal from the engine control module to activate at variable rates of speed. Variable speeds shall be set through thermostatic and engine speed signals to run as efficiently and quietly as required to maintain temperature.

ENGINE COOLING SYSTEM

There shall be a heavy-duty aluminum cooling system designed to meet the demands of the emergency response industry. The cooling system shall have the capacity to keep the engine properly cooled under all conditions of road and pumping operations. The cooling system shall be designed and tested to meet or exceed the requirements specified by the engine and transmission manufacturer and all EPA requirements. The complete cooling system shall be mounted to isolate the entire system from vibration or stress. The individual cores of the cooling system shall be mounted in a manner to allow expansion and contraction at various rates without inducing stress into the adjoining cores.

The cooling system shall be comprised of a charge air cooler to radiator serial flow package that provides the maximum cooling capacity for the specified engine as well as serviceability. The main components shall

include a surge tank, a charge air cooler bolted to the front of the radiator, recirculation shields, a shroud, a fan, and required tubing.

The radiator shall be a down-flow design constructed with aluminum cores, plastic end tanks, and a steel frame. The radiator shall be equipped with a drain cock to drain the coolant for serviceability.

The cooling system shall include a one piece injected molded polymer fan with a three (3) piece fiberglass fan shroud.

The cooling system shall be equipped with a surge tank that is capable of removing entrained air from the system. The surge tank shall be equipped with a low coolant probe and rearward oriented sight glass to observe coolant in the system. A cold fill and observation line shall be included within the frame mounted translucent recovery bottle to monitor the level of the coolant. The surge tank shall have a dual seal cap that meets the engine manufacturer's pressure requirements and allows for expansion and recovery of coolant into a separate integral expansion chamber.

All radiator tubes shall be formed from aluminized steel tubing. Recirculation shields shall be installed where required to prevent heated air from reentering the cooling package and affecting performance.

The charge air cooler shall be a cross-flow design constructed completely of aluminum with cast tanks. All charge air cooler tubes shall be formed from aluminized steel tubing and installed with silicone hump hoses and stainless steel “constant torque” style clamps meeting the engine manufacturer's requirements.

The radiator and charge air cooler shall be removable through the bottom of the chassis.

ENGINE COOLING SYSTEM PROTECTION

The engine cooling system shall include a recirculation shield designed to act as a light duty skid plate below the radiator to provide additional protection for the engine cooling system from light impacts, stones, and road debris. The skid plate shall be painted to match the frame components.

ENGINE COOLANT

The cooling package shall include Extended Life Coolant (ELC). The use of ELC provides longer intervals between coolant changes over standard coolants providing improved performance. The coolant shall contain a 50/50 mix of ethylene glycol and de-ionized water to keep the coolant from freezing to a temperature of -34 degrees Fahrenheit.

Proposals offering supplemental coolant additives (SCA) shall not be considered, as this is part of the extended life coolant makeup.

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ELECTRONIC COOLANT LEVEL INDICATOR

The instrument panel shall feature a low engine coolant indicator light which shall be located in the center of the instrument panel. An audible tone alarm shall also be provided to warn of a low coolant incident.

ENGINE PUMP HEAT EXCHANGER

A single bundle type coolant to water heat exchanger shall be installed between the engine and the radiator. The heat exchanger shall be designed to prohibit water from the pump from coming in contact with the engine coolant. This shall allow the use of water from the discharge side of the pump to assist in cooling the engine.

COOLANT HOSES

The cooling systems hose shall be formed silicone hose and formed aluminized steel tubing and include stainless steel constant torque band clamps.

ENGINE COOLANT OVERFLOW BOTTLE

A remote engine coolant overflow expansion bottle shall be provided in the case of over filling the coolant system. The overflow bottle shall capture the expansion fluid or overfill rather than allow the fluid to drain on the ground.

ENGINE EXHAUST SYSTEM

The exhaust system shall include an end-in end-out horizontally mounted single module after treatment device, and downpipe from the charge air cooled turbo. The single module shall include four temperature sensors, diesel particulate filter (DPF), urea dosing module (UL2), and a selective catalytic reduction (SCR) catalyst to meet current EPA standards. The selective catalytic reduction catalyst utilizes a diesel exhaust fluid solution consisting of urea and purified water to convert NOx into nitrogen, water, and trace amounts of carbon dioxide. The solution shall be mixed and injected into the system through the DPF and SCR.

The system shall utilize 0.07 inch thick stainless steel exhaust tubing between the engine turbo and the DPF. Zero leak clamps seal all system joints between the turbo and DPF.

The single module after treatment through the end of the tailpipe shall be connected with zero leak clamps. The discharge shall terminate horizontally on the right side of the vehicle ahead of the rear tires.

The exhaust system after treatment module shall be mounted below the frame in the outboard position.

DIESEL EXHAUST FLUID TANK

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The exhaust system shall include a molded cross linked polyethylene tank for Diesel Exhaust Fluid (DEF). The tank shall have a capacity of six (6) usable gallons and shall be mounted on the left hand side of the chassis frame behind the batteries below the frame.

The DEF tank shall be designed with capacity for expansion in case of fluid freezing. Engine coolant, which shall be thermostatically controlled, shall be run through lines in the tank to help prevent the DEF from freezing and to provide a means of thawing the fluid if it should become frozen.

The tank fill tube shall be routed under the rear of the cab with the fill neck and splash guard accessible in the top rear step.

ENGINE EXHAUST ACCESSORIES

An exhaust temperature mitigation device shall be shipped loose for installation by the body manufacturer on the vehicle. The temperature mitigation device shall lower the temperature of the exhaust by combining ambient air with the exhaust gasses at the exhaust outlet.

The tail pipe shall have a drop in it to allow additional clearance from the body.

ENGINE EXHAUST WRAP

The exhaust tubing between the engine turbo and the diesel particulate filter (DPF) shall be wrapped with a thermal cover in order to retain the necessary heat for DPF regeneration. The exhaust wrap shall also help protect surrounding components from radiant heat which can be transferred from the exhaust.

The exhaust flex joint shall not include the thermal exhaust wrap.

EMISSIONS SYSTEMS WARRANTY

Purchaser shall receive a Regulated Emissions Systems Five (5) Years or 100,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0140. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

TRANSMISSION

The drive train shall include an Allison model EVS 3000 torque converting, automatic transmission which shall include electronic controls. The transmission shall feature two (2) 10-bolt PTO pads located on the converter housing.

The transmission shall include two (2) internal oil filters and Castrol TranSynd™ synthetic TES 295 transmission fluid which shall be utilized in the lubrication of the EVS transmission. An electronic oil level

sensor shall be included with the readout located in the shift selector.

The transmission gear ratios shall be:

1st	3.49:1
2nd	1.86:1
3rd	1.41:1
4th	1.00:1
5th	0.75:1
6th	0.65:1 (if applicable)
Rev	5.03:1

TRANSMISSION MODE PROGRAMMING

The transmission, upon start-up, will select five (5) speeds of operation. The sixth speed over drive shall be available with the activation of the mode button on the shifting pad.

TRANSMISSION FEATURE PROGRAMMING

The Allison Gen V/VI-E transmission EVS group package number 127 shall contain the 198 vocational package in consideration of the duty of this apparatus as a pumper. This package shall incorporate an automatic neutral with selector override. This feature commands the transmission to neutral when the park brake is applied, regardless of drive range requested on the shift selector. This requires re-selecting drive range to shift out of neutral for the override.

This package shall be coupled with the use of a split shaft PTO and incorporate pumping circuits. These circuits shall be used allowing the vehicle to operate in the fourth range lockup while operating the pump mode due to the 1 to 1 ratio through the transmission, therefore the output speed of the engine is the input speed to the pump. The pump output can be easily calculated by using this input speed and the drive ratio of the pump itself to rate the gallons of water the pump can provide.

A transmission interface connector shall be provided in the cab. This package shall contain the following input/output circuits to the transmission control module. The Gen V/VI-E transmission shall include prognostic diagnostic capabilities. These capabilities shall include the monitoring of the fluid life, filter change indication, and transmission clutch maintenance.

Function ID	Description	Wire assignment
Inputs		
C	PTO Request	142
J	Fire Truck Pump Mode (4th Lockup)	122 / 123
Outputs		
C	Range Indicator	145 (4th)

G	PTO Enable Output	130
	Signal Return	103

TRANSMISSION SHIFT SELECTOR

An Allison pressure sensitive range selector touch pad shall be provided and located to the right of the driver within clear view and easy reach. The shift selector shall have a graphical Vacuum Florescent Display (VFD) capable of displaying two lines of text. The shift selector shall provide mode indication and a prognostic indicator (wrench symbol) on the digital display. The prognostics monitor various operating parameters and shall alert you when a specific maintenance function is required.

ELECTRONIC TRANSMISSION OIL LEVEL INDICATOR

The transmission fluid shall be monitored electronically and shall send a signal to activate a warning in the instrument panel when levels fall below normal.

TRANSMISSION PRE-SELECT WITH AUXILIARY BRAKE

When the auxiliary brake is engaged, the transmission shall automatically shift to second gear to decrease the rate of speed assisting the secondary braking system and slowing the vehicle.

TRANSMISSION COOLING SYSTEM

The transmission shall include a water to oil cooler system located in the cooling loop between the radiator and the engine. The transmission cooling system shall meet all transmission manufacturer requirements. The transmission cooling system shall feature continuous flow of engine bypass water to maintain uninterrupted transmission cooling.

TRANSMISSION DRAIN PLUG

The transmission shall include an original equipment manufacturer installed magnetic transmission fluid drain plug.

TRANSMISSION WARRANTY

The Allison EVS series transmission shall be warranted for a period of five (5) years with unlimited mileage. Parts and labor shall be included in the warranty.

PTO LOCATION

The transmission shall have two (2) power take off (PTO) mounting locations, one (1) in the 8:00 o'clock

position and one (1) in the 4:00 o'clock position.

DRIVELINE

All drivelines shall be heavy duty metal tube and equipped with MSI 1710 series universal joints. The shafts shall be dynamically balanced prior to installation to alleviate future vibration. In areas of the driveline where a slip shaft is required, the splined slip joint shall be coated with Glide Coat®. The drivelines shall include Meritor brand u-joints with thrust washers.

MIDSHIP PUMP / GEARBOX

A temporary jackshaft driveline shall be installed by the chassis manufacturer to accommodate the mid-ship split shaft pump as specified by the apparatus manufacturer.

MIDSHIP PUMP / GEARBOX MODEL

The midship pump/gearbox provisions shall be for a Waterous CXSC20 pump.

MIDSHIP PUMP GEARBOX DROP

The Waterous pump gearbox shall have a "C" (medium length) drop length.

MIDSHIP PUMP RATIO

The ratio for the midship pump shall be 2.27:1.

MIDSHIP PUMP LOCATION C/L SUCTION TO C/L REAR AXLE

The midship pump shall be located so the dimension from the centerline of the suction to the centerline of the rear axle is 80.00 inches.

FUEL FILTER/WATER SEPARATOR

The fuel system shall have a Fleetguard FS20121 fuel filter/water separator as a primary filter. The fuel filter shall have a drain valve.

A water in fuel sensor shall be provided and wired to an instrument panel lamp and audible alarm to indicate when water is present in the fuel/water separator.

A secondary fuel filter shall be included as approved by the engine manufacturer.

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FUEL LINES

The fuel system supply and return lines installed from the fuel tank to the engine shall be reinforced nylon tubing rated for diesel fuel. The fuel lines shall be brown in color and connected with brass fittings.

FUEL SHUTOFF VALVE

There shall be two (2) fuel shutoff valves which shall be installed, one (1) in the fuel draw line at the primary fuel filter and one (1) in the fuel outlet line at the primary fuel filter to allow the fuel filters to be changed without loss of fuel to the fuel pump.

A third fuel shutoff valve shall be installed in the fuel draw line, near the fuel tank to allow maintenance to be performed with minimal loss of fuel.

ELECTRIC FUEL PRIMER

Integral to the engine assembly is an electric lift pump that serves the purpose of pre-filter fuel priming.

FUEL TANK

The fuel tank shall have a capacity of fifty (50) gallons and shall measure 35.00 inches in width X 15.00 inches in height X 24.00 inches in length.

The baffled tank shall have a vent port to facilitate venting to the top of the fill neck for rapid filling without "blow-back" and a roll over ball check vent for temperature related fuel expansion and draw.

The tank is designed with dual draw tubes and sender flanges. The tank shall have 2.00 inch NPT fill ports for right or left hand fill. A 0.50 inch NPT drain plug shall be centered in the bottom of the tank.

The fuel tank shall be mounted below the frame, behind the rear axle. Two (2) three-piece strap hanger assemblies with “U” straps bolted midway on the fuel tank front and rear shall be utilized to allow the tank to be easily lowered and removed for service purposes. Rubber isolating pads shall be provided between the tank and the upper tank mounting brackets. Strap mounting studs through the rail, hidden behind the body shall not be acceptable.

FUEL TANK MATERIAL AND FINISH

The fuel tank shall be constructed of 12 gauge aluminized steel. The exterior of the tank shall be powder coated black and then painted to match the frame components.

All powder coatings, primers and paint shall be compatible with all metals, pretreatments and primers used.

The cross hatch adhesion test per ASTM D3359 Method B, results to be 5B minimum. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794, results to be 5B minimum.

Any proposals offering painted fuel tanks with variations from the above process shall not be accepted. The film thickness of vendor supplied parts shall also be sufficient to meet the performance standards as stated above.

FUEL TANK STRAP MATERIAL

The fuel tank straps shall be constructed of ASTM A-36 steel. The fuel tank straps shall be powder coated black and then painted to match the frame components if possible.

FUEL TANK FILL PORT

The fuel tank fill ports shall be offset with the left fill port located in the rearward position and the right fill port located in the middle position on the fuel tank.

FUEL TANK SERVICEABILTY PROVISIONS

The chassis fuel lines shall have additional length provided so the tank can be easily lowered and removed for service purposes. The additional 8.00 feet of length shall be located above the fuel tank and shall be coiled and secured. The fuel line fittings shall be pointed towards the right side (curbside) of the chassis.

FUEL TANK DRAIN PLUG

A 0.5 inch NPT magnetic drain plug shall be centered in the bottom of the fuel tank.

FRONT AXLE

The front axle shall be a Meritor Easy Steer Non drive front axle, model number MFS-20. The axle shall include a 3.74 inch drop and a 71.00 inch king pin intersection (KPI). The axle shall include a conventional style hub with a standard knuckle. The weight capacity for the axle shall be rated to 21,500 pounds FAWR.

FRONT WHEEL BEARING LUBRICATION

The front axle wheel bearings shall be lubricated with oil. The oil level can be visually checked via clear inspection windows in the front axle hubs.

FRONT SHOCK ABSORBERS

Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the front suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintains consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life.

The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.

The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and "road sensing" shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers.

Proposals offering the use of conventional twin tube or "road sensing" designed shocks shall not be considered.

FRONT SUSPENSION

The front suspension shall include a ten (10) leaf spring pack in which the longest leaf measures 54.00 inch long and 4.00 inches wide and shall include a military double wrapped front eye. Both spring eyes shall have a case hardened threaded bushing installed with lubrication counter bore and lubrication land off cross bore with grease fitting. The spring capacity shall be rated at 21,500 pounds.

STEERING COLUMN/ WHEEL

The cab shall include a Douglas Autotech steering column which shall include a seven (7) position tilt, a 2.25 inch telescopic adjustment, and an 18.00 inch, four (4) spoke steering wheel located at the driver's position. The steering wheel shall be covered with black polyurethane foam padding.

The steering column shall contain a horn button, self-canceling turn signal switch, four-way hazard switch and headlamp dimmer switch.

ELECTRONIC POWER STEERING FLUID LEVEL INDICATOR

The power steering fluid shall be monitored electronically and shall send a signal to activate an audible alarm and visual warning in the instrument panel when fluid level falls below normal.

POWER STEERING PUMP

The hydraulic power steering pump shall be a TRW PS and shall be gear driven from the engine. The pump shall be a balanced, positive displacement, sliding vane type. The power steering system shall include an oil to

air passive cooler.

FRONT AXLE CRAMP ANGLE

The chassis shall have a front axle cramp angle of 48-degrees to the left and 44-degrees to the right.

POWER STEERING GEAR

The power steering gear shall be a TRW model TAS 65 with an assist cylinder.

CHASSIS ALIGNMENT

The chassis frame rails shall be measured to insure the length is correct and cross checked to make sure they run parallel and are square to each other. The front and rear axles shall be laser aligned. The front tires and wheels shall be aligned and toe-in set on the front tires by the chassis manufacturer.

REAR AXLE

The rear axle shall be a Meritor model RS-30-185 single drive axle. The axle shall include precision forged, single reduction differential gearing, and shall have a fire service rated capacity of 33,000 pounds.

The axle shall be built of superior construction and quality components to provide the rugged dependability needed to stand up to the fire industry's demands. The axle shall include rectangular shaped, hot-formed housing with a standard wall thickness of 0.56 of an inch for extra strength and rigidity and a rigid differential case for high axle strength and reduced maintenance.

The axle shall have heavy-duty Hypoid gearing for longer life, greater strength and quieter operation. Industry-standard wheel ends for compatibility with both disc and drum brakes, and unitized oil seal technology to keep lubricant in and help prevent contaminant damage will be used.

REAR AXLE DIFFERENTIAL LUBRICATION

The rear axle differential shall be lubricated with oil.

WHEEL HUB PAINT

Each of the wheel hubs shall be coated with gloss black paint.

REAR WHEEL BEARING LUBRICATION

The rear axle wheel bearings shall be lubricated with oil.

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VEHICLE TOP SPEED

The top speed of the vehicle shall be approximately 60 MPH +/-2 MPH at governed engine RPM.

REAR SUSPENSION

The single rear axle shall feature a Reyco 79KB suspension which shall offer a vari-rate, self-leveling captive slipper type conventional multi-leaf spring suspension with 57.50 inch X 3.00 inch springs. One (1) adjustable and one (1) fixed torque rod shall be provided.

A helper spring shall be provided in addition to the standard spring pack to help prevent vehicle sway during aggressive cornering.

The rear suspension capacity shall be rated at 21,000 to 33,000 pounds.

REAR SHOCK ABSORBERS

Two (2) Bilstein inert, nitrogen gas filled shock absorbers shall be provided and installed as part of the rear suspension system. The shocks shall be a monotubular design and fabricated using a special extrusion method, utilizing a single blank of steel without a welded seam, achieving an extremely tight peak-to-valley tolerance and maintains consistent wall thickness. The monotubular design shall provide superior strength while maximizing heat dissipation and shock life.

The ride afforded through the use of a gas shock is more consistent and shall not deteriorate with heat, the same way a conventional oil filled hydraulic shock would.

The Bilstein front shocks shall include a digressive working piston assembly allowing independent tuning of the compression and rebound damping forces to provide optimum ride and comfort without compromise. The working piston design shall feature fewer parts than most conventional twin tube and “road sensing” shock designs and shall contribute to the durability and long life of the Bilstein shock absorbers.

Proposals offering the use of conventional twin tube or “road sensing” designed shocks shall not be considered.

TIRE INTERMITTENT SERVICE RATING

The chassis shall be rated using Intermittent Service ratings provided to the emergency vehicle market by the tire manufacturers as the basis for determining the maximum vehicle load and speed.

FRONT TIRE

The front tires shall be Michelin 425/65R-22.5 20PR "L" tubeless radial XZY3 mixed service tread.

The front tire stamped load capacity shall be 22,800 pounds per axle with a nominal speed rating of 65 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum load capacity shall be 24,396 pounds per axle with a maximum speed of 65 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating maximum speed capacity shall be 22,800 pounds per axle with a speed rating of 75 miles per hour when properly inflated to 120 pounds per square inch.

The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR TIRE

The rear tires shall be Michelin 315/80R-22.5 20PR "L" tubeless radial XDN2 Grip all weather tread.

The rear tire stamped load capacity shall be 33,080 pounds per axle with a nominal speed rating of 75 miles per hour when properly inflated to 130 pounds per square inch.

The Michelin Intermittent Service Rating maximum load capacity shall be 35,396 pounds per axle with a maximum speed of 75 miles per hour when properly inflated to 130 pounds per square inch.

The Michelin Intermittent Service Rating maximum speed capacity shall match the nominal speed rating.

The Michelin Intermittent Service Rating limits the operation of the emergency vehicle to no more than fifty (50) miles of continuous operation under maximum recommended payload, or without stopping for at least twenty (20) minutes. The emergency vehicle must reduce its speed to no more than 50 MPH after the first fifty (50) miles of travel.

REAR AXLE RATIO

The rear axle ratio shall be 6.14:1.

TIRE PRESSURE INDICATOR

There shall be electronic chrome LED valve caps shipped loose for installation by the OEM which shall illuminate with a red LED when tire pressure drops 8psi provided. The valve caps are self-calibrating and set to

the pressure of the tire upon installation.

FRONT WHEEL

The front wheels shall be Accuride hub piloted, 22.50 inch X 12.25 inch steel wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

WHEEL PAINT

The front steel wheels shall be pretreated in a zinc phosphate bath, coated with a cathode electro deposited white primer base coat (E-Coat). The E-Coat shall exceed 336 hours under industry standard ASTM salt spray testing.

The wheels shall then be finish painted the same as the primary/lower color of the cab by the chassis manufacturer.

REAR WHEEL

The rear wheels shall be Accuride hub piloted, heavy duty, 22.50 inch X 9.00 steel wheels. The hub piloted mounting system shall provide easy installation and shall include two-piece flange nuts.

WHEEL PAINT

The rear steel wheels shall be pretreated in a zinc phosphate bath, coated with a cathode electro deposited white primer base coat (E-Coat). The E-Coat shall exceed 336 hours under industry standard ASTM salt spray testing.

The wheels shall then be finish painted the same as the primary/lower color of the cab by the chassis manufacturer.

BALANCE WHEELS AND TIRES

All of the wheels and tires, including any spare wheels and tire assemblies, shall be dynamically balanced.

BRAKE SYSTEM

A rapid build-up air brake system shall be provided. The air brakes shall include, at a minimum, a two (2) air tank, three (3) reservoir system with a total of 4152 cubic inch of air capacity. A floor mounted treadle valve shall be mounted inside the cab for graduated control of applying and releasing the brakes. An inversion valve shall be installed to provide a service brake application in the unlikely event of primary air supply loss. All air reservoirs provided on the chassis shall be labeled for identification.

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The rear axle spring brakes shall automatically apply in any situation when the air pressure falls below 25 PSI and shall include a mechanical means for releasing the spring brakes when necessary. An audible alarm shall designate when the system air pressure is below 60 PSI.

A four (4) sensor, four (4) modulator anti-lock braking system (ABS) shall be installed on the front and rear axles in order to prevent the brakes from locking or skidding while braking during hard stops or on icy or wet surfaces. This in turn shall allow the driver to maintain steering control under heavy braking and in most instances, shorten the braking distance. The electronic monitoring system shall incorporate diagonal circuitry which shall monitor wheel speed during braking through a sensor and tone ring on each wheel. A dash mounted ABS lamp shall be provided to notify the driver of a system malfunction. The ABS system shall automatically disengage the auxiliary braking system device when required. The speedometer screen shall be capable of reporting all active defaults using PID/SID and FMI standards.

Additional safety shall be accommodated through Automatic Traction Control (ATC) which shall be installed on the single rear axle. The ATC system shall apply the ABS when the drive wheels loose traction. The system shall scale the electronic engine throttle back to prevent wheel spin while accelerating on ice or wet surfaces.

A momentary rocker style switch shall be provided and properly labeled “mud/snow”. When the switch is pressed once, the system shall allow a momentary wheel slip to obtain traction under extreme mud and snow conditions. During this condition the ATC light and the light on the rocker switch shall blink continuously notifying the driver of activation. Pressing the switch again shall deactivate the mud/snow feature.

The Electronic Stability Control (ESC) unit is a functional extension of the electronic braking system. It is able to detect any skidding of the vehicle about its vertical axis as well as any rollover tendency. The control unit comprises an angular-speed sensor that measures the vehicle’s motion about the vertical axis, caused, for instance, by cornering or by skidding on a slippery road surface. An acceleration sensor measures the vehicle’s lateral acceleration. The Controller Area Network (CAN) bus provides information on the steering angle. On the basis of lateral acceleration and steering angle, an integrated microcontroller calculates a theoretical angular speed for the stable vehicle condition.

FRONT BRAKES

The front brakes shall be Meritor EX225 Disc Plus disc brakes with 17.00 inch vented rotors.

REAR BRAKES

The rear brakes shall be Meritor 16.50 inch X 8.63 inch S-cam drum type. The brakes shall feature a cast iron shoe.

PARK BRAKE

Upon application of the push-pull valve in the cab, the rear brakes will engage via mechanical spring force. This is accomplished by dual chamber rear brakes, satisfying the FMVSS parking brake requirements.

PARK BRAKE CONTROL

A Meritor-Wabco manual hand control push-pull style valve shall operate the parking brake.

The parking brake actuation valve shall be mounted to the left side of the engine tunnel integrated into the transmission shift pod console within easy access of the driver.

REAR BRAKE SLACK ADJUSTERS

Haldex rear brake automatic slack adjusters shall be installed on the axle.

AIR DRYER

The brake system shall include a Wabco System Saver 1200 air dryer with an integral 100 watt heater with a Metri-Pack sealed connector. The air dryer incorporates an internal turbo cutoff valve that closes the path between the air compressor and air dryer purge valve during the compressor "unload" cycle. The turbo cutoff valve allows purging of moisture and contaminants without the loss of turbo boost pressure. The air dryer shall be located on the right hand frame rail forward of the front wheel behind the right hand cab step.

FRONT BRAKE CHAMBERS

The front brakes shall be provided with MGM type 24 long stroke brake chambers.

REAR BRAKE CHAMBERS

The rear axle shall include TSE 30/36 brake chambers which shall convert the energy of compressed air into mechanical force and motion. This shall actuate the brake camshaft, which in turn shall operate the foundational brake mechanism forcing the brake shoes against the brake drum. The TSE Type 36 brake chamber has a 36.00 square inch effective area.

AIR COMPRESSOR

The air compressor provided for the engine shall be a Wabco® SS318 single cylinder pass-through drive type compressor which shall be capable of producing 18.7 CFM at 1200 engine RPMs. The air compressor shall feature a higher delivery efficiency translating to more air delivery per horsepower absorbed. The compressor shall include an aluminum cylinder head which shall improve cooling, reduce weight and decrease carbon formation. Superior piston and bore finishing technology shall reduce oil consumption and significantly

increasing the system component life.

AIR GOVERNOR

An air governor shall be provided to control the cut-in and cut-out pressures of the engine mounted air compressor. The governor shall be calibrated to meet FMVSS requirements. The air governor shall be located on the air dryer bracket.

MOISTURE EJECTORS

Automatic moisture ejectors with a manual pet-cock type drain provision shall be installed on all reservoirs of the air supply system.

AIR SUPPLY LINES

The air system on the chassis shall be plumbed with color coded reinforced nylon tubing air lines. The primary (rear) brake line shall be green, the secondary (front) brake line red, the parking brake line orange and the auxiliary (outlet) will be blue.

Push to connect type fittings shall be used on the nylon tubing. All drop hoses shall include fiber reinforced neoprene covered hoses.

REAR AIR TANK MOUNTING

If a combination of wheel base, air tank quantity, or other requirements necessitate the location of one or more air tanks to be mounted rear of the fuel tank, these tank(s) will be mounted perpendicular to frame.

WHEELBASE

The chassis wheelbase shall be 235.00 inches.

REAR OVERHANG

The chassis rear overhang shall be 56.00 inches.

FRAME

The frame shall consist of double rails running parallel to each other with cross members forming a ladder style frame. The frame rails shall be formed in the shape of a "C" channel, with the outer rail measuring 10.25 inches high X 3.50 inches deep upper and lower flanges X 0.38 inches thick with an inner channel of 9.44 inches high X 3.13 inches deep and 0.38 inches thick. Each rail shall be constructed of 110,000 psi minimum yield high

strength low alloy steel. Each double rail section shall be rated by a Resistance Bending Moment (RBM) minimum of 3,213,100 inch pounds and have a minimum section modulus of 29.21 cubic inches. The frame shall measure 35.00 inches in width.

Proposals calculating the frame strength using the "box method" shall not be considered.

Proposals including heat treated rails shall not be considered. Heat treating frame rails produces rails that are not uniform in their mechanical properties throughout the length of the rail. Rails made of high strength, low alloy steel are already at the required yield strength prior to forming the rail.

A minimum of seven (7) fully gusseted 0.25 inch thick cross members shall be installed. The inclusion of the body mounting, or bumper mounting shall not be considered as a cross member. The cross members shall be attached using zinc coated grade 8 fasteners. The bolt heads shall be flanged type, held in place by distorted thread flanged lock nuts. Each cross member shall be mounted to the frame rails utilizing a minimum of 0.25 inch thick gusset reinforcement plates at all corners balancing the area of force throughout the entire frame.
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Any proposals not including additional reinforcement for each cross member shall not be considered.

All relief areas shall be cut in with a minimum 2.00 inch radius at intersection points with the edges ground to a smooth finish to prevent a stress concentration point.

REAR TOW DEVICE

Two (2) heavy duty painted tow eyes shall be installed extending rearward from the frame at the rear of the chassis. The tow eyes shall be fabricated from 0.75 inch thick #1020 ASTM-36 hot rolled steel. The inside diameter of the tow eye shall be 2.00 inches and shall have a chamfered edge. The tow eyes shall be bolted one (1) on each side to the outside of the chassis frame with grade 8 bolts. The tow eyes shall be painted to match the chassis frame.

FRAME PAINT

The frame rails shall be hot dip galvanized prior to assembly and attachment of any components. The components that shall be galvanized shall include:

- Main frame "C" channel or channels

The frame parts which are not galvanized shall be powder coated prior to any attachment of components. Parts which shall be powder coated shall include but are not limited to:

- Steering gear bracket

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- Front splayed rails and fish plates
- Bumper extensions
- Cross members
- Cross member gussets
- Fuel tank mounting brackets
- Fuel tank straps (unless material/finish is specified in 3130 subcat)
- Air tanks (unless color coded tanks are specified in 3205 subcat)
- Air tank mounting brackets
- Exhaust mounting brackets
- Air cleaner skid plate
- Radiator skid plate
- Battery supports, battery trays and battery covers

Other non-galvanized under carriage components which are received from the suppliers with coatings already applied shall include but are not limited to:

- Suspension components
- Front and rear axles

All powder coatings, primers and paint used on the non-galvanized components shall be compatible with all metals, pretreatments and primers used. The cross hatch adhesion test per ASTM D3359 shall not have a fail of more than ten (10) squares. The pencil hardness test per ASTM D3363 shall have a final post-curved pencil hardness of H-2H. The direct impact resistance test per ASTM D2794 shall have an impact resistance of 120.00 inches per pound at 2 mils.

FRAME ASSEMBLY STRUCTURAL

Purchaser shall receive a Frame Assembly Structural Twenty (50) Years or 250,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0305. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

FRAME RAIL CORROSION

Purchaser shall receive a Frame Rail Corrosion (Zinc Plate and Powder Coat) Twenty Five (25) Years or 150,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0316. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

FRAME COMPONENTS CORROSION

Purchaser shall receive a Frame Components Corrosion (Powder Coat) Three (3) Years or 48,000 Miles limited

warranty in accordance with, and subject to, warranty certificate RFW0313. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

FRONT BUMPER

The chassis shall be equipped with a severe duty front bumper constructed from structural steel channel. The bumper material shall be 0.38 thick ASTM A36 steel which shall measure 12.00 inches high with a 3.05 inch flange and shall be 99.00 inches wide with angled front corners.

The bumper shall be primed and painted as specified.

FRONT BUMPER EXTENSION LENGTH

The front bumper shall be extended approximately 24.00 inches ahead of the cab.

FRONT BUMPER PAINT

The front bumper shall be painted the same as the lower cab color.

FRONT BUMPER APRON

The 24.00 inch extended front bumper shall include an apron constructed of 0.19 inch thick embossed aluminum tread plate.

The apron shall be installed between the bumper and the front face of the cab affixed using stainless steel bolts attaching the apron to the top bumper flange.

FRONT BUMPER DISCHARGE

The chassis shall include frame mounted 2.00 inch diameter plumbed pipe intended for use as a discharge trash line. The discharge pipe shall be routed from the right hand front splay rail area behind the bumper to the area rear of the front axle, ahead of the battery box.

The discharge shall pipe shall be a, 2.00 inch stainless steel schedule 10 tube. The discharge shall include a Victaulic groove for connecting to the pump and discharge hose plumbing on each end of the tube.

The apparatus manufacturer shall plumb the discharge pipe to the pump and shall provide all valves as required.

FRONT BUMPER COMPARTMENT CENTER

The front bumper shall include a compartment in the bumper apron located in the center between the frame rails

which may be used as a hose well. The compartment shall be constructed of 0.13 inch 5052-H32 grade aluminum and shall include drain holes in the bottom corners to allow excess moisture to escape. Two PAC Trac straps shall be provided with the storage well. The straps shall be installed over the top of the compartment to retain the hose.

MECHANICAL SIREN

The front bumper shall include an electro mechanical Federal Q2B™ siren, which shall be streamlined, chrome-plated and shall produce 123 decibels of sound at 10.00 feet. The Q2B™ siren produces a distinctive warning sound that is recognizable at long distances. A unique clutch design provides a longer coast down sound while reducing the amp draw to 100 amps. The siren shall measure 10.50 inches wide X 10.00 inches high X 14.00 inches deep. The siren shall include mounting hardware designed to recess or flush mount.

MECHANICAL SIREN LOCATION

The siren shall be recess mounted on the left side of the front fascia of the bumper approximately in the center of the flat surface between the bumper radius and the frame rail. The siren shall be mounted completely behind the face of the bumper to protect the siren from damage.

AIR HORN

The front bumper shall include two (2) Hadley brand E-Tone air horns which shall measure 21.00 inches long with a 6.00 inch round flare. The air horns shall be trumpet style with a chrome finish on the exterior and a painted finish deep inside the trumpet.

AIR HORN LOCATION

The air horns shall be recess mounted in the front bumper fascia between the frame rails in the right and left outboard positions.

AIR HORN RESERVOIR

One (1) air reservoir, with a 1200 cubic inch capacity, shall be installed on the chassis to act as a supply tank for operating air horns. The reservoir shall be isolated with a 90 PSI pressure protection valve on the reservoir supply side to prevent depletion of the air to the air brake system.

ELECTRONIC SIREN SPEAKER

There shall be one (1) Federal Signal Inc. Dynamax® model ES100C, 100 watt speaker provided. The speaker shall measure 5.90 inches tall X 5.50 inches wide X 2.30 inches deep. The speaker shall include a Federal Signal “Electric F” style grille which shall measure 6.61 inches tall X 6.78 inches wide.

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ELECTRONIC SIREN SPEAKER LOCATION

The electronic siren speaker shall be located on the front bumper face in the center position between the frame rails.

FRONT BUMPER TOW HOOKS

Two (2) heavy duty tow hooks, painted to match the frame components, shall be installed in the rearward position out of the approach angle area, bolted directly to the side of each chassis frame rail with grade 8 bolts.

CAB TILT SYSTEM

The entire cab shall be capable of tilting approximately 45-degrees to allow for easy maintenance of the engine and transmission. The cab tilt pump assembly shall be located on the right side of the chassis above the battery box.

The electric-over-hydraulic lift system shall include an ignition interlock and red cab lock down indicator lamp on the tilt control which shall illuminate when holding the “Down” button to indicate safe road operation.

It shall be necessary to activate the master battery switch and set the parking brake in order to tilt the cab. As a third precaution the ignition switch must be turned off to complete the cab tilt interlock safety circuit.

Two (2) spring-loaded hydraulic hold down hooks located outboard of the frame shall be installed to hold the cab securely to the frame. Once the hold-down hooks are set in place, it shall take the application of pressure from the hydraulic cab tilt lift pump to release the hooks.

Two (2) cab tilt cylinders shall be provided with velocity fuses in each cylinder port. The cab tilt pivots shall be 1.90 inch ball and be anchored to frame brackets with 1.25 inch diameter studs.

A steel safety channel assembly, painted safety yellow shall be installed on the right side cab lift cylinder to prevent accidental cab lowering. The safety channel assembly shall fall over the lift cylinder when the cab is in the fully tilted position. A cable release system shall also be provided to retract the safety channel assembly from the lift cylinder to allow the lowering of the cab.

CAB TILT AUXILIARY PUMP

A manual cab tilt pump module shall be attached to the cab tilt pump housing.

CAB TILT LIMIT SWITCH

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A cab tilt limit switch shall be installed. The switch will effectively limit the travel of the cab when being tilted. The limit adjustment of the switch shall be preset by the chassis manufacturer to prevent damage to the cab or any bumper mounted option mounted in the cab tilt arc. Further adjustment to the limit by the apparatus manufacturer shall be available to accommodate additional equipment.

CAB TILT CONTROL RECEPTACLE

The cab tilt control cable shall include a receptacle which shall be temporarily located on the right hand chassis rail rear of the cab to provide a place to plug in the cab tilt remote control pendant. The tilt pump shall include 8.00 feet of cable with a six (6) pin Deutsch receptacle with a cap.

The remote control pendant shall include 20.00 feet of cable with a mating Deutsch connector. The remote control pendant shall be shipped loose with the chassis.

CAB TILT LOCK DOWN INDICATOR

The cab dash shall include a message located within the dual air pressure gauge which shall alert the driver when the cab is unlocked and ajar. The alert message shall cease to be displayed when the cab is in the fully lowered position and the hold down hooks are secured and locked to the cab mounts.

In addition to the alert message an audible alarm shall sound when the cab is unlocked and ajar with the parking brake released.

CAB WINDSHIELD

The cab windshield shall have a surface area of 2825.00 square inches and be of a two (2) piece wraparound design for maximum visibility.

The glass utilized for the windshield shall include standard automotive tint. The left and right windshield shall be fully interchangeable thereby minimizing stocking and replacement costs.

Each windshield shall be installed using black self locking window rubber.

GLASS FRONT DOOR

The front cab doors shall include a window which is 27.00 inches in width X 26.00 inches in height. These windows shall have the capability to roll down completely into the door housing. This shall be accomplished manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

There shall be an irregular shaped fixed window which shall measure 2.50 inches wide at the top, 8.00 inches

wide at the bottom X 26.00 inches in height, more commonly known as “cozy glass” ahead of the front door roll down windows.

The windows shall be mounted within the frame of the front doors trimmed with a black anodized ring on the exterior.

GLASS TINT FRONT DOOR

The windows located in the left and right front doors shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS REAR DOOR RH

The rear right hand side door shall include a window which is 27.00 inches in width X 26.00 inches in height. This window shall roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

GLASS TINT REAR DOOR RIGHT HAND

The window located in the right hand side rear window shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

GLASS REAR DOOR LH

The rear left hand side door shall include a window which is 27.00 inches in width X 26.00 inches in height. This window shall roll up and down manually utilizing a crank style handle on the inside of the door. A reinforced window regulator assembly shall be provided for severe duty use.

GLASS TINT REAR DOOR LEFT HAND

The window located in the left hand side rear door shall include a dark gray automotive tint which shall allow forty-five percent (45%) light transmittance. The dark tint shall aid in cab cooling and help protect passengers from radiant solar energy.

CLIMATE CONTROL

A ceiling mounted combination defroster and cabin heating and air conditioning system shall be located above the engine tunnel area. The system covers and plenums shall be of severe duty design made of aluminum which shall be coated with a customer specified interior paint. The design of the system’s covers shall provide quick access to washable air intake filters as well as easy access to other serviceable items.

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The air delivery plenums provide targeted airflow directly to the vehicle occupants. Six (6) adjustable louvers will provide comfort for the front seat occupants and ten (10) adjustable louvers will provide comfort for the rear crew occupants.
The system shall be capable of producing up to 12 FPM of air velocity at all occupant seating positions. Separate front and rear blower motors shall be of brushless design and shall be controlled independently. It shall be capable of reducing the interior cabin air temperature from 122˚ F (+/- 3˚ F) to 80˚ F in thirty minutes with 50% relative humidity and full solar load as described in SAE J2646.
The system shall also provide heater pull up performance which meets or exceeds the performance requirements of SAE J1612 as well as defrost performance that meets or exceeds the performance requirements of SAE J381.
A gravity drain system shall be provided that is capable of evacuating condensate from the vehicle while on a slope of up to a 13% grade in any direction.
The air conditioning system plumbing shall be a mixture of custom bent zinc coated steel fittings and Aeroquip flexible hose with Aeroquip EZ-Clip fittings.
The overhead heater/defroster plumbing shall include an electronic flow control valve that re-directs hot coolant away from the evaporator, via a bypass loop, as the temperature control is moved toward the cold position.
Any component which needs to be accessed to perform system troubleshooting shall be accessible by one person using basic hand tools. Regularly serviced items shall be replaceable by one person using basic hand tools.
****The chassis manufacturer recommends that the overall climate system performance be based off third-party testing in accordance with the Society of Automotive Engineering standards as a complete system.***

Individual component level BTU ratings is not an accurate indicator of the performance capability of the completed system. System individual component BTU ratings:

- Air conditioning evaporator total BTU/HR: 82,000
- Air conditioning condenser total BTU/HR: 59,000
- Heater coil total BTU/HR: 98,000

Performance data specified is based on testing performed by an independent third-party test facility using a medium four-door 10" raised roof cab equipped with an ISL engine.

CLIMATE CONTROL DRAIN

The climate control system shall include a gravity drain for water management. The gravity drain shall remove condensation from the air conditioning system without additional mechanical assistance.

CLIMATE CONTROL ACTIVATION

The heating, defrosting and air conditioning controls shall be in the center dash center switch panel, in a position which is easily accessible to the driver. The climate control shall be activated by a rotary switch.

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HVAC OVERHEAD COVER PAINT

The overhead HVAC cover shall be painted with a multi-tone onyx black texture finish.

A/C CONDENSER LOCATION

A roof mounted A/C condenser shall be installed centered on the cab forward of the raised roof against the slope rise.

A/C COMPRESSOR

The air-conditioning compressor shall be a belt driven, engine mounted compressor. The compressor shall be compatible with R134-a refrigerant.

*****The chassis manufacturer recommends that the overall climate system performance be based off third-party testing in accordance with the Society of Automotive Engineering standards as a complete system.***

Individual component level ratings are not an accurate indicator of the performance capability of the completed system.
Refrigerant Compressor displacement: 19.1 cubic inches per revolution.

UNDER CAB INSULATION

The underside of the cab tunnel surrounding the engine shall be lined with multi-layer insulation, engineered for application inside diesel engine compartments.

The insulation shall act as a noise barrier, absorbing noise thus keeping the decibel level in the cab well within NFPA recommendations. As an additional benefit, the insulation shall assist in sustaining the desired temperature within the cab interior.

The engine tunnel insulation shall measure approximately 0.30 inch thick including a multi-layer foil faced glass cloth and polyester fiber layer. The foil surface acts as protection against heat, moisture and other contaminants. The insulation shall meet or exceed FMVSS 302 flammability test.

The insulation shall be cut precisely to fit each section and sealed for additional heat and sound deflection. The insulation shall be held in place by acrylic pressure sensitive adhesive.

INTERIOR TRIM FLOOR

The floor of the cab shall be covered with a multi-layer mat consisting of 0.25 inch thick sound absorbing closed cell foam with a 0.06 inch thick non-slip vinyl surface with a pebble grain finish. The covering shall be

held in place by a pressure sensitive adhesive and aluminum trim molding. All exposed seams shall be sealed with silicone caulk matching the color of the floor mat to reduce the chance of moisture and debris retention.

INTERIOR TRIM

The cab interior shall include trim on the front ceiling, rear crew ceiling, and the cab walls. It shall be easily removable to assist in maintenance. The trim shall be constructed of insulated vinyl over a hard board backing.

REAR WALL INTERIOR TRIM

The rear wall of the cab shall be trimmed with vinyl.

HEADER TRIM

The cab interior shall feature header trim over the driver and officer dash constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum.

TRIM CENTER DASH

The main center dash area shall be constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum plate. There shall be four (4) holes located on the top of the dash near each outer edge of the electrical access cover for ventilation. The center dash electrical access cover shall include a gas cylinder stay which shall hold the cover open during maintenance.

TRIM LH DASH

The left hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 inch thick aluminum plate for a perfect fit around the instrument panel. For increased occupant protection the extreme duty left hand dash utilizes patent pending break away technology to reduce rigidity in the event of a frontal crash. The left hand dash shall offer lower vertical surface area to the left and right of the steering column to accommodate control panels.

TRIM RH DASH

The right hand dash shall be constructed of 5052-H32 Marine Grade, 0.13 of an inch thick aluminum plate and shall include a glove compartment with a hinged door and a Mobile Data Terminal (MDT) provision. The glove compartment size will measure 14.00 inches wide X 6.38 inches high X 5.88 inches deep. The MDT provision shall be provided above the glove compartment.

ENGINE TUNNEL TRIM

The cab engine tunnel shall be covered with a multi-layer mat consisting of 0.25 inch closed cell foam with a

0.06 inch thick non-slip vinyl surface with a pebble grain finish. The mat shall be held in place by pressure sensitive adhesive. The engine tunnel mat shall be trimmed with anodized aluminum stair nosing trim for an aesthetically pleasing appearance.

POWER POINT DASH MOUNT

The cab shall include one (1) Dual universal serial bus (USB) charging receptacle in the cab dash rocker switch cutout to provide a power source for USB chargeable electrical equipment. One (1) USB port shall be capable of a 5 Volt-2.4 amp output and One (1) USB port shall be capable of a 5 Volt-2.4 amp output. The receptacles shall be wired battery direct and include a backlit legend.

STEP TRIM

Each cab entry door shall include a three step entry. The first step closest to the ground shall be constructed of SAE 304 stainless steel with embossed perforations and diamond shaped cutout. The perforations and cutouts shall allow water and other debris to flow through rather than becoming trapped within the stepping surface. The step shall feature a splash guard to reduce water and debris from splashing in to the step. The splash guard shall have drainage holes beneath the back of the step to allow debris and water to flow through rather than becoming trapped within the stepping surface. The stainless steel material shall have a number 8 mirror finish. The lower step shall be mounted to a frame which is integral with the construction of the cab for rigidity and strength. The middle step shall be integral with the cab construction and shall be trimmed with a Flex-Tred® adhesive grit surface material.

UNDER CAB ACCESS DOOR

The cab shall include an aluminum access door in the left crew step riser painted to match the cab interior paint with a push and turn latch. The under cab access door shall provide access to the diesel exhaust fluid fill.

INTERIOR DOOR TRIM

The interior trim on the doors of the cab shall consist of an aluminum panel constructed of Marine Grade 5052-H32 0.13 of an inch thick aluminum plate. The door panels shall include a painted finish.

DOOR TRIM CUSTOMER NAMEPLATE

The interior door trim on the front doors shall include a customer nameplate which states the vehicle was custom built for their Department.

CAB DOOR TRIM REFLECTIVE

The interior of each door shall include high visibility reflective tape. A white reflective tape shall be provided

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vertically along the rear outer edge of the door. The lowest portion of each door skin shall include a reflective tape chevron with red and white stripes and a Spartan logo. The chevron tape shall measure 6.00 inches in height.

INTERIOR GRAB HANDLE "A" PILLAR

There shall be two (2) rubber covered 11.00 inch grab handles installed inside the cab, one on each “A” post at the left and right door openings. The left handle shall be located 7.88 inches above the bottom of the door window opening and the right handle shall be located 2.88 inches above the bottom of the door window opening. The handles shall assist personnel in entering and exiting the cab.

INTERIOR GRAB HANDLE FRONT DOOR

Each front door shall include one (1) ergonomically contoured 9.00 inch cast aluminum handle mounted horizontally on the interior door panels. The handles shall feature a textured black powder coat finish to assist personnel entering and exiting the cab.

INTERIOR GRAB HANDLE REAR DOOR

A black powder coated cast aluminum assist handle shall be provided on the inside of each rear crew door. A 30.00 inch long handle shall extend horizontally the width of the window just above the window sill. The handle shall assist personnel in exiting and entering the cab.

INTERIOR SOFT TRIM COLOR

The cab interior soft trim surfaces shall be black in color.

INTERIOR TRIM SUNVISOR

The header shall include two (2) sun visors, one each side forward of the driver and officer seating positions above the windshield. Each sun visor shall be constructed of Masonite and covered with padded vinyl trim.

INTERIOR FLOOR MAT COLOR

The cab interior floor mat shall be black in color.

CAB PAINT INTERIOR DOOR TRIM

The inner door panel surfaces shall be painted with multi-tone onyx black texture finish.

HEADER TRIM INTERIOR PAINT

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The metal surfaces in the header area shall be coated with multi-tone onyx black texture finish.

TRIM CENTER DASH INTERIOR PAINT

The entire center dash shall be coated with multi-tone onyx black texture finish. Any accessory pods attached to the dash shall also be painted this color.

TRIM LH DASH INTERIOR PAINT

The left hand dash shall be painted with a multi-tone onyx black texture finish.

TRIM RIGHT HAND DASH INTERIOR PAINT

The right hand dash shall be painted with multi-tone onyx black texture finish.

DASH PANEL GROUP

The main center dash area shall include three (3) removable panels located one (1) to the right of the driver position, one (1) in the center of the dash and one (1) to the left of the officer position. The center panel shall be within comfortable reach of both the driver and officer.

SWITCHES CENTER PANEL

The center dash panel shall include six (6) switch positions in the upper left portion of the panel.

A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

SWITCHES LEFT PANEL

The left dash panel shall include three (3) switches. There shall be two (2) across the top of the panel with one (1) below. One (1) of the top row of switches shall be rocker type and the left one (1) shall be the windshield wiper/washer control switch. The lower switch shall be a rocker type switch.

A rocker switch with a blank legend installed directly above shall be provided for any position not designated by a specific option. The non-designated switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

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SWITCHES RIGHT PANEL

The right dash panel shall six (6) rocker switch positions in a three (3) over three (3) switch configuration.

A rocker switch with a blank legend installed directly above shall be provided for any position without a switch and legend designated by a specific option. The non-specified switches shall be two-position, black switches with a green indicator light. Each blank switch legend can be custom engraved by the body manufacturer. All switch legends shall have backlighting provided.

SEAT BELT WARNING

A Weldon seat belt warning system, integrated with the Vehicle Data Recorder system, shall be installed for each seat within the cab. The system shall provide a visual warning indicator in the Vista display and control screen(s).

The warning system shall activate when any seat is occupied with a minimum of 60 pounds, the corresponding seat belt remains unfastened, and the park brake is released. The warning system shall also activate when any seat is occupied, the corresponding seat belt was fastened in an incorrect sequence, and the park brake is released. Once activated, the visual indicators and applicable audible alarm shall remain active until all occupied seats have the seat belts fastened.

SEAT MATERIAL

The Bostrom Firefighter seats shall include a covering of extra high strength, wear resistant fabric made of durable low seam Durawear Plus™ ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Durawear Plus™ meets or exceeds specification of the common trade name Imperial 1800. The material meets FMVSS 302 flammability requirements.
If applicable, Theatre style seats located in the cab shall be high strength, wear resistant fabric made of durable ballistic polyester. A PVC coating shall be bonded to the back side of the material to help protect the seats from UV rays and from being saturated or contaminated by fluids. Common trade names for this material are Imperial 1200 and Durawear.

SEAT COLOR

All seats supplied with the chassis shall be gray in color. All seats shall include red seat belts.

SEAT BACK LOGO

The seat back logo shall be designed for North Topsail Beach Fire Department. . The logo shall be centered on

the standard headrest of the seat back and on the left side of a split headrest.

SEAT DRIVER

The driver's seat shall be an H.O. Bostrom 400 Series Firefighter Sierra model seat. The seat shall feature eight-way electric positioning. The eight positions shall include up and down, fore and aft with 8.00 inches of travel, back angle adjustment and seat rake adjustment. The seat shall feature integral springs to isolate shock.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00 inches measured with the seat height adjusted to the lowest position of travel.

This model of seat shall have successfully completed the static load tests set forth by FMVSS 207, 209, and 210 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity.

The materials used in construction of the seat shall also have successfully completed testing with regard to the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which dictates the allowable burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK DRIVER

The driver’s seat shall include a standard seat back incorporating the all belts to seat feature (ABTS). The seat back shall feature a contoured head rest.

SEAT MOUNTING DRIVER

The driver’s seat shall be installed in an ergonomic position in relation to the cab dash.

SEAT OFFICER

The officer's seat shall be an H.O. Bostrom 500 Series Sierra model seat. The seat shall feature two-way manual adjustment and shall include a tapered and padded seat cushion. The seat shall also feature integral springs to isolate shock.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt, automatic retractor and buckle as an integral part of the seat assembly. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced

comfort and safety by allowing customized seat belt fit.

The minimum vertical dimension from the seat H-point to the ceiling for this belted seating position shall be 35.00.

This model of seat shall have successfully completed the static load tests by FMVSS 207, 209, 210 and 302 in effect at the time of manufacture. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK OFFICER

The officer's seat shall feature a SecureAll™ SCBA locking system which shall be one bracket model and store most U.S. and International SCBA brands and sizes while in transit or for storage within the seat back. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters. All adjustment points shall utilize similar hardware and adjustments shall be made with one tool.

The bracket shall be adjustable to compensate for different cylinder lengths without the use of tools. The adjustment shall be made by raising a lever and moving the top clamp vertically**.**

The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the SCBA tank in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed against the pivot arm to engage the patented auto- locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions.

The SecureAll™ shall include a release handle which shall be integrated into the seat cushion for quick and easy release. This shall eliminate the need for straps or pull cords to interfere with other SCBA equipment.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

SEAT MOUNTING OFFICER

The officer's seat shall offer a special mounting position which is 2.00 inches rearward of the standard location offering increased leg room for the occupant.

POWER SEAT WIRING

The power seat or seats installed in the cab shall be wired directly to battery power.

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SEAT BELT ORIENTATION CREW

The crew position seat belts shall follow the standard orientation which extends from the outboard shoulder extending to the inboard hip.

SEAT FORWARD FACING CENTER LOCATION

The crew area shall include two (2) forward facing center crew seats with both located at the center of the rear wall.

SEAT CREW FORWARD FACING CENTER

The forward facing center seat shall be a H.O. Bostrom 500 Series Firefighter model seat. The seat shall feature a tapered and padded seat, and cushion. The seat shall be mounted in a fixed position. The seat and cushion shall be hinged and compact in design for additional room. The seat shall include a "Fold and Hold" feature so that the cushion shall remain in the seated position and simply touched to flip up.

The seat shall feature an all belts to seat (ABTS) style of safety restraint. The ABTS feature shall include a three-point shoulder harness with the lap belt and automatic retractor as an integral part of the seat assembly. The buckle portion of the seat belt shall extend from the seat base towards the driver position within easy reach of the occupant. The ABTS feature shall also include the RiteHite™ shoulder adjustment feature to provide enhanced comfort and safety by allowing customized seat belt fit.

The minimum vertical dimension from the seat H-point to the ceiling for each belted seating position shall be 35.00 inches.

This model of seat shall have successfully completed the static load tests by FMVSS 207/210. This testing shall include a simultaneous forward load of 3000 pounds each on the lap and shoulder belts and twenty (20) times the weight through the center of gravity. This model of seat installed in the cab model, as specified, shall have successfully completed the dynamic sled testing using FMVSS 208 as a guide with the following accommodations. In order to reflect the larger size outfitted firefighters, the test dummy used shall be a 95th percentile hybrid III male weighing 225 pounds rather than the 50th percentile male dummy weighing 165 pounds as referenced in FMVSS 208. The model of seats shall also have successfully completed the flammability of materials used in the occupant compartments of motor vehicles as outlined in FMVSS 302, of which decides the burning rate of materials in the occupant compartments of motor vehicles.

SEAT BACK FORWARD FACING CENTER

The forward facing center seat shall feature a SecureAll™ self contained breathing apparatus (SCBA) locking system which shall be one bracket model and store most U.S. and International SCBA brands and sizes while in

transit or for storage within the seat back. The bracket shall be easily adjustable for all SCBA brands and cylinder diameters. All adjustment points shall utilize similar hardware and adjustments shall be made with one tool.

The bracket shall be adjustable to compensate for different cylinder lengths without the use of tools. The adjustment shall be made by raising a lever and moving the top clamp vertically**.**

The bracket system shall be free of straps and clamps that may interfere with auxiliary equipment on SCBA units. The center guide fork shall keep the SCBA tank in place for a safe and comfortable fit in the seat back cavity. The SCBA unit simply needs to be pushed against the pivot arm to engage the patented auto- locking system. Once the lock is engaged, the top clamp shall surround the top of the SCBA tank for a secure fit in all directions.

The SecureAll™ shall include a release handle which shall be integrated into the seat cushion for quick and easy release. This shall eliminate the need for straps or pull cords to interfere with other SCBA equipment.

The seat back shall include a removable padded cover which shall be provided over the SCBA cavity.

SEAT FRAME FORWARD FACING

The forward facing center seating positions shall include an enclosed seat frame located and installed on the rear wall. The seat frame shall measure 48.00 inches wide X 12.38 inches high X 22.00 inches deep. The seat frame shall be constructed of Marine Grade 5052-H32 0.19 inch thick aluminum plate. The seat box shall be painted the same color as the remaining interior.

SEAT FRAME FORWARD FACING STORAGE ACCESS

There shall be two (2) access points to the seat frame storage area, one (1) on each side of the seat frame. Each access point shall be covered by a hinged door which measures 15.00 inches in width X 10.63 inches in height.

SEAT MOUNTING FORWARD FACING CENTER

The forward facing center seats shall offer a special mounting. The seats shall be installed 6.00 inches apart offering additional room for each occupant.

CAB FRONT UNDERSEAT STORAGE ACCESS

The left and right under seat storage areas shall have a solid aluminum hinged door with non-locking latch.

SEAT COMPARTMENT DOOR FINISH

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All underseat storage compartment access doors shall have a multi-tone onyx black texture finish.

WINDSHIELD WIPER SYSTEM

The cab shall include a triple arm linkage wiper system which shall clear the windshield of water, ice and debris. There shall be two (2) windshield wipers; each shall be affixed to a radial arm. The wiper motor shall be activated by an intermittent wiper control located within easy reach of the driver's position.

ELECTRONIC WINDSHIELD FLUID LEVEL INDICATOR

The windshield washer fluid level shall be monitored electronically. When the washer fluid level becomes low the yellow "Check Message Center" indicator light on the instrument panel shall illuminate and the message center in the dual air pressure gauge shall display a "Check Washer Fluid Level" message.

CAB DOOR HARDWARE

The cab entry doors shall be equipped with exterior pull handles, suitable for use while wearing firefighter gloves. The handles shall be made of a fiber reinforced plastic composite with a black matt finish.

The interior exit door handles shall be flush paddle type with a black finish, which are incorporated into the upper door panel.

All cab entry doors shall include locks which are keyed alike. The door locks shall be designed to prevent accidental lockout.

DOOR LOCKS

Each cab entry door shall include a manually operated door lock. Each door lock may be actuated from the inside of the cab by means of a red knob located on the paddle handle of the respective door or by using a TriMark key from the exterior. The door locks are designed to prevent accidental lock out.

GRAB HANDLES

The cab shall include one (1) 18.00 inch knurled, anti-slip, one-piece exterior assist handle behind each cab door. The grab handle shall be made of SAE 304 stainless steel and be 1.25 inch diameter to enable non-slip assistance with a gloved hand.

REARVIEW MIRRORS

Retrac Aerodynamic West Coast style dual vision mirror heads model 613300 shall be provided and installed on each of the front cab doors.

The mirrors shall be mounted via 1.00 inch diameter tubular stainless steel arms to provide a rigid mounting to reduce mirror vibration.

The mirrors shall measure 8.00 inches wide X 19.00 inches high and shall include an integral convex mirrors installed in the mirror head below the flat glass to provide a wider field of vision. The flat and convex mirrors shall be motorized with remote horizontal and vertical adjustment. The control switches shall be mounted within easy reach of the driver. The flat and convex mirrors shall be heated for defrosting in severe cold weather conditions.

The mirrors shall be constructed of a vacuum formed black ABS plastic housing that is corrosion resistant and shall include the finest quality non-glare glass.

REARVIEW MIRROR HEAT SWITCH

The heat for the rearview mirrors shall be controlled through a virtual button on the Vista display and control screen.

CAB FENDER

Full width wheel well liners shall be installed on the extruded cab to limit road splash and enable easier cleaning. Each two-piece liner shall consist of an inner liner 16.00 inches wide made of vacuum formed ABS composite and an outer fenderette 5.00 inches wide made of aluminum with a painted gloss black finish.

MUD FLAPS FRONT

The front wheel wells shall have mud flaps installed on them.

CAB EXTERIOR FRONT & SIDE EMBLEMS

The cab shall include three (3) Spartan emblems. There shall be one (1) installed on the front air intake grille and one (1) emblem on each of the cab sides.

IGNITION

A master battery system with a keyless start ignition system shall be provided. Each system shall be controlled by a one-quarter turn Cole Hersee switch, both of which shall be mounted to the left of the steering wheel on the dash. A chrome push type starter button shall be provided adjacent to the master battery and ignition switches.

Each switch shall illuminate a green LED indicator light on the dash when the respective switch is placed in the "ON" position.

The starter button shall only operate when both the master battery and ignition switches are in the "ON" position.

BATTERY

The single start electrical system shall include six (6) Harris BCI 31 925 CCA batteries with a 210 minute reserve capacity and 4/0 welding type dual path starter cables per SAE J541.

BATTERY TRAY

The batteries shall be installed within two (2) steel battery trays located on the left side and right side of the chassis, securely bolted to the frame rails. The battery trays shall be coated with the same material as the frame.

The battery trays shall include drain holes in the bottom for sufficient drainage of water. A durable, non-conducting, interlocking mat made by Dri-Dek shall be installed in the bottom of the trays to allow for air flow and help prevent moisture build up. The batteries shall be held in place by non-conducting phenolic resin hold down boards.

BATTERY BOX COVER

Each battery box shall include a steel cover which protects the top of the batteries. Each cover shall include flush latches which shall keep the cover secure as well as a black powder coated handle for convenience when opening.

BATTERY CABLE

The starting system shall include cables which shall be protected by 275 degree F. minimum high temperature flame retardant loom, sealed at the ends with heat shrink and sealant.

BATTERY JUMPER STUD

The starting system shall include battery jumper studs. These studs shall be located in the forward most portion of the driver's side lower step, 8.00 inches apart. The studs shall allow the vehicle to be jump started, charged, or the cab to be raised in an emergency in the event of battery failure.

ALTERNATOR

The charging system shall include a 320 amp Leece-Neville 12 volt alternator. The alternator shall include a self-exciting integral regulator.

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STARTER MOTOR

The single start electrical system shall include a Delco brand starter motor.

BATTERY CONDITIONER

A Kussmaul Auto Charge 40 LPC battery conditioner shall be supplied. The battery conditioner shall provide a 40 amp output for the chassis batteries and a 15 amp output circuit for accessory loads. The battery conditioner shall be mounted in the cab in the LH rear facing outer seating position.

BATTERY CONDITIONER DISPLAY

A Kussmaul battery conditioner with bar graph display shall be integrated into the electrical inlet.

AUXILIARY AIR COMPRESSOR

A Kussmaul Auto Pump 120V air compressor shall be supplied. The air compressor shall be installed under the dashboard on the right-hand side, forward of the officer's seating position. The air compressor shall be plumbed to the air brake system to maintain air pressure.

ELECTRICAL INLET LOCATION

An electrical inlet shall be installed on the left hand side of cab over the wheel well.

ELECTRICAL INLET

A Kussmaul 20 amp super auto-eject electrical receptacle shall be supplied. It shall automatically eject the plug when the starter button is depressed.

A single item or an addition of multiple items must not exceed the rating of the electric inlet that it's connected to.

Amp Draw Reference List:
Kussmaul 40 LPC Charger - 5 Amps
Kussmaul 40/20 Charger - 8.5 Amps
Kussmaul 80 LPC Charger - 13 Amps
Kussmaul EV-40 - 6.2 Amps
Blue Sea P12 7532 - 7.5 Amps
Iota DLS-45/IQ4 - 11 Amps
1000W Engine Heater - 8.33 Amps
1500W Engine Heater - 12.5 Amps

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120V Air Compressor - 4.2 Amps
120V Dometic HVAC - 15 Amps

ELECTRICAL INLET CONNECTION

The electrical inlet shall be connected to the battery conditioner and the air pump.

ELECTRICAL INLET COLOR

The electrical inlet connection shall include a red cover.

HEADLIGHTS

The cab front shall include four (4) rectangular LED headlamps with separate high and low beams mounted in bright chrome bezels. Each lamp shall include a heating system that de-ices the headlight.

HEADLIGHT LOCATION

The headlights shall be located on the front fascia of the cab directly below the front warning lights.

FRONT TURN SIGNALS

The front fascia shall include two (2) Whelen model 600 4.00 inch X 6.00 inch programmable amber LED light heads with clear lens which shall be installed in a black radius mount housing above and outboard of the front warning and head lamps.

SIDE TURN/MARKER LIGHTS

The sides of the cab shall include two (2) Tecniq S170 LED side marker lights which shall be provided just behind the front cab radius corners. The lights shall be amber with black bezels.

MARKER AND ICC LIGHTS

In accordance with FMVSS, there shall be five (5) marker lamps on the front of the vehicle designating identification and clearance. There shall be five (5) face mounted lights integrated into the scene light.

HEADLIGHT AND MARKER LIGHT ACTIVATION

The headlights and marker lights shall be controlled via a virtual button on the Vista display. There shall be a virtual dimmer control on the Vista display to adjust the brightness of the dash lights. The headlamps shall be equipped with the "Daytime Running" light feature, which shall illuminate the headlights when the ignition

switch is in the "On" position and the parking brake is released.

LIGHTBAR SWITCH

The light bar shall be controlled through the master warning switch.

INTERIOR OVERHEAD LIGHTS

The cab shall include a LED dome lamp located over each door. The lights shall include push switches on each lamp to activate both the clear and red portions of the light individually.

INTERIOR OVERHEAD LIGHTS ACTIVATION

The clear portion of each lamp shall be activated by opening the respective door and via the multiplex display.

LIGHTBAR PROVISION

There shall be one (1) light bar installed on the cab roof. The light bar shall be provided and installed by the chassis manufacturer. The light bar installation shall include a lowered mounting that shall place the light bar just above the junction box and wiring to a control switch on the cab dash.

CAB FRONT LIGHTBAR MODEL

The cab shall be provided with one (1) Whelen model F4N72 light bar. The light bar shall be 72.00 inches in length and feature eighteen (18) customizable pods.

See the light bar layout for specific details.

FRONT SCENE LIGHTS

The front of the cab shall include one (1) HiViz model FireTech FT-B-72-ML-B LED scene light installed on the brow of the cab. The light shall feature (5) five integrated marker lights.

The housing shall be powder coated black.

FRONT SCENE LIGHT LOCATION

There shall be one (1) scene light mounted center on the front brow of the cab.

FRONT SCENE LIGHTS ACTIVATION

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The front scene lighting shall be activated by a virtual button on the Vista display and control screen. The virtual button shall be a multi-level button to toggle through the front scene lighting activation levels. The button shall toggle through and display the state as “Off”, “Spot”, “Flood”, “Scene”, “Off” and then repeat that cycle. With each level of activation the previous state is maintained, so that “Flood” is both “Spot” and “Flood” modes together, while “Scene” is all three (3) levels activated simultaneously.

Additionally, there shall be a lighted momentary rocker switch on the dash. The rocker switch shall toggle through the front scene lighting activation levels. The button shall toggle through and display the state as “Off”, “Spot”, “Flood”, “Scene”, “Off” and then repeat that cycle.

SIDE SCENE LIGHTS

The side of the cab shall include two (2) Firetech model FT-GESM Guardian Elite LED scene lights, one (1) each side which shall be surface mounted with a black bezel.

SIDE SCENE LIGHT LOCATION

The scene lighting located on the left and right sides of the cab shall be mounted rearward of the cab “B” pillar in the 10.00 inch raised roof portion of the cab between the front and rear crew doors.

SIDE SCENE ACTIVATION

The scene lights shall be activated by two (2) lighted momentary rocker switches located in the switch panel, one (1) for each light, by two (2) virtual buttons on the Vista display and control screen(s), one (1) for each light, and by opening the respective side cab doors.

GROUND LIGHTS

Each door shall include a Tecniq T44 LED ground light mounted to the underside of the cab step below each door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life.

GROUND LIGHTS

The ground lighting shall be activated when the parking brake is set, by the opening of the door on the respective cab side, and through a virtual button on the Vista display and control screen.

LOWER CAB STEP LIGHTS

The middle step located at each door shall include a Tecniq T44 LED light which shall activate with the

opening of the respective door. The lights shall include a polycarbonate lens, a housing which is vibration welded and LEDs which shall be shock mounted for extended life.

INTERMEDIATE STEP LIGHTS

The intermediate step well area at the front doors shall include a TecNiq D06 LED light within a chrome housing. The front egress step lights shall provide visibility to the step well area for the first step exiting the vehicle. The Egress step lights shall activate with entry step lighting.

ENGINE COMPARTMENT LIGHT

There shall be a LED NFPA compliant light mounted under the engine tunnel for area work lighting on the engine. The light shall include a polycarbonate lens, a housing which is vibration welded and a bulb which shall be shock mounted for extended life. The light shall activate automatically when the cab is tilted.

DO NOT MOVE APPARATUS LIGHT

The front headliner of the cab shall include a flashing red TecNiq K50 LED light clearly labeled "Do Not Move Apparatus". In addition to the flashing red light, an audible alarm shall be included which shall sound while the light is activated.

The flashing red light shall be located centered left to right for greatest visibility.

The light and alarm shall be interlocked for activation when either a cab door is not firmly closed, or an apparatus compartment door is not closed, and the parking brake is released.

MASTER WARNING SWITCH

A master switch shall be included, as a virtual button on the Vista display and control screen which shall be labeled “E Master” for identification. The button shall feature control over all devices wired through it. Any warning device switches left in the “ON” position when the master switch is activated shall automatically power up.

HEADLIGHT FLASHER

An alternating high beam headlight flashing system shall be installed into the high beam headlight circuit which shall allow the high beams to flash alternately from left to right.

Deliberate operator selection of high beams will override the flashing function until low beams are again selected. Per NFPA, these clear flashing lights will also be disabled “On Scene” when the park brake is applied.

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HEADLIGHT FLASHER SWITCH

The flashing headlights shall be activated through a virtual button on the Vista display and control screen.

INBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen 600 series Super LED front warning lights in the left and right inboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the front fascia of the cab within a black bezel.

INBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the inboard positions shall be red with a clear lens.

OUTBOARD FRONT WARNING LIGHTS

The cab front fascia shall include two (2) Whelen 600 series Super LED front warning lights in the left and right outboard positions. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the front fascia of the cab within a black bezel.

OUTBOARD FRONT WARNING LIGHTS COLOR

The warning lights mounted on the cab front fascia in the outboard position shall be red with a clear lens.

FRONT WARNING SWITCH

The front warning lights shall be controlled through a virtual control on the Vista display and control screen. This switch shall be clearly labeled for identification.

INTERSECTION WARNING LIGHTS

The chassis shall include two (2) Whelen 600 series Super LED intersection warning lights, one (1) each side. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted within a black bezel.

INTERSECTION WARNING LIGHTS COLOR

The intersection lights shall be red with a clear lens.

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INTERSECTION WARNING LIGHTS LOCATION

The intersection lights shall be mounted on the side of the bumper in the rearward position.

SIDE WARNING LIGHTS

The cab sides shall include two (2) Whelen 600 series Super LED warning lights, one (1) on each side. The lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors. The lights shall be mounted to the sides of the cab within a black bezel.

SIDE WARNING LIGHTS COLOR

The warning lights located on the side of the cab shall be red with clear lens.

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the cab shall be mounted over the front wheel well directly over the center of the front axle.

SIDE AND INTERSECTION WARNING SWITCH

The side warning lights shall be controlled through a virtual button on the Vista display and control screen. This button shall be clearly labeled for identification.

TANK LEVEL LIGHTS

There shall be two (2) Whelen Strip-Light Plus XL tank lights surface mounted within a black bezel.

The light strips shall feature four (4) colors of LED lights to indicate the fluid level of a tank. The lights shall change in color to indicate the water level of the tank in ¼ tank increments, the colors shall change from green indicating a full tank to blue, amber, and red as the tank level drops.

TANK LEVEL LIGHTS ACTIVATION

An FRC remote large light driver shall be installed under the dash with the signal wire for the primary display routed to the rear of cab on the chassis.

The light activation shall be active with the park brake set and ignition on.

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TANK LEVEL LIGHTS LOCATION

There shall be water level lights mounted on each side of the cab, centered between the rear cab doors and the rear corners of the cab.

INTERIOR DOOR OPEN WARNING LIGHTS

The interior of each door shall include one (1) 15.87 inch long X 0.73 inch tall amber Weldon LED warning light. The light shall be located on the upper portion of the door frame to be visible when a person is standing in front of the door while entering or exiting the cab. Each light shall activate with a scrolling directional flash pattern which moves from inside to outside when the door is in the open position. This shall serve as a warning to oncoming traffic.

SIREN CONTROL HEAD

A Whelen 295HFS2 electronic siren control head with remote amplifier shall be provided and flush mounted in the switch panel with a location specific to the customer's needs. The siren shall feature 200-watt output, hands free mode and shall be in "standby" mode awaiting instruction. The siren shall offer radio broadcast, public address, wail, yelp, or piercer tones and hands free operation which shall allow the operator to turn the siren on and off from the horn ring if a horn/siren selector switch option is also selected.

STEERING WHEEL HORN BUTTON SELECTOR SWITCH

A virtual button on the Vista display and control screen shall be provided to allow control of either the electric horn or the air horn from the steering wheel horn button. The electric horn shall sound by default when the selector switch is in either position to meet FMCSA requirements.

AUDIBLE WARNING LH FOOT SWITCH

Two (2) foot actuated switches shall be supplied for installation in the front section of the cab for driver actuation. One (1) switch shall be wired to actuate the air horn(s) and one (1) switch the mechanical siren(s).

AIR HORN FOOT SWITCH LH

The air horn foot switch shall be a Linemaster model 491-S.

AIR HORN FOOT SWITCH LH LOCATION

The air horn foot switch shall be located on the left hand side accessible to the driver between the steering column and the door.

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AIR HORN FOOT SWITCH LH POSITION

The air horn foot switch shall be positioned inboard of any other foot switch, if applicable.

MECHANICAL SIREN FOOT SWITCH LH

The mechanical siren foot switch shall be a Linemaster model 491-S.

MECHANICAL SIREN FOOT SWITCH LH LOCATION

The mechanical siren foot switch shall be located on the left hand side accessible to the driver between the steering column and the door.

MECHANICAL SIREN FOOT SWITCH LH POSITION

The mechanical siren foot switch shall be positioned outboard of any other foot switch, if applicable.

AUDIBLE WARNING LH FOOT SWITCH BRACKET

A 30.00 degree angled foot switch bracket, wide enough to accommodate (2) foot switches, shall be installed outboard of the steering column for specified driver accessible foot switch activations.

AUDIBLE WARNING RH FOOT SWITCH

Two (2) foot actuated switches shall be supplied for installation in the front section of the cab for officer actuation. One (1) switch shall be wired to actuate the air horn(s) and one (1) switch the mechanical siren(s).

AIR HORN FOOT SWITCH RH

The air horn foot switch shall be a Linemaster model 491-S.

AIR HORN FOOT SWITCH RH LOCATION

The air horn foot switch shall be temporarily tied up with a coiled wire drop at the firewall inboard for installation by the customer on the right hand side accessible to the officer.

MECHANICAL SIREN FOOT SWITCH RH

The mechanical siren foot switch shall be a Linemaster model 491-S.

MECHANICAL SIREN FOOT SWITCH RH LOCATION

The mechanical siren foot switch shall be temporarily tied up with a coiled wire drop at the firewall inboard for installation by the customer on the right hand side accessible to the officer.

AUDIBLE WARNING RH FOOT SWITCH BRACKET

An individual 30.00 degree angled bracket shall be shipped loose with the chassis for installation of each officer accessible foot switch by the customer.

MECHANICAL SIREN BRAKE/AUXILIARY ACTIVATION

A red momentary siren brake rocker switch shall be provided in the switch panel on the dash.

MECHANICAL SIREN INTERLOCK

The siren activation shall be interlocked with the park brake and shall only be active when master warning switch is on to prevent accidental engagement.

BACK-UP ALARM

An ECCO model 575 backup alarm shall be installed at the rear of the chassis with an output level of 107 dB. The alarm shall automatically activate when the transmission is placed in reverse.

INSTRUMENTATION

An ergonomically designed instrument panel shall be provided. Each gauge shall be backlit with LED lamps. Stepper motor movements shall drive all gauges. The instrumentation system shall be multiplexed and shall receive ABS, engine, and transmission information over the J1939 data bus to reduce redundant sensors and wiring.

A twenty eight (28) icon lightbar message center with integral LCD odometer/trip odometer shall be included. The odometer shall display up to 999,999.9 miles. The trip odometer shall display 9,999.9 miles. The LCD message center screen shall be capable of custom configuration by the users for displaying certain vehicle status and diagnostic functions.

The instrument panel shall contain the following gauges:

One (1) three-movement gauge displaying vehicle speed, fuel level, and Diesel Exhaust Fluid (DEF) level. The primary scale on the speedometer shall read from 0 to 100 MPH, and the secondary scale on the speedometer shall read from 0 to 160 KM/H. The scale on the fuel and DEF level gauges shall read from empty to full as a fraction of full tank capacity. Red indicator lights in the gauge and an audible alarm shall indicate low fuel or

low DEF at 1/8th tank level.

One (1) three-movement gauge displaying engine RPM, and primary and secondary air system pressures shall be included. The scale on the tachometer shall read from 0 to 3000 RPM. The scale on the air pressure gauges shall read from 0 to 150 pounds per square inch (PSI) with a red line zone indicating critical levels of air pressure. Red indicator lights in the gauge and an audible alarm shall indicate low air pressure.

One (1) four-movement gauge displaying engine oil pressure, coolant temperature, voltmeter, and transmission temperature shall be included. The scale on the engine oil pressure gauge shall read from 0 to 100 pounds PSI with a red line zone indicating critical levels of oil pressure. A red indicator light in the gauge and audible alarm shall indicate low engine oil pressure. The scale on the coolant temperature gauge shall read from 100 to 250 degrees Fahrenheit (°F) with a red line zone indicating critical coolant temperatures. A red indicator light in the gauge and audible alarm shall indicate high coolant temperature. The scale on the voltmeter shall read from 9 to 18 volts with a red line zone indicating critical levels of battery voltage. A red indicator light in the gauge and an audible alarm shall indicate high or low system voltage. The low voltage alarm shall indicate when the system voltage has dropped below 11.8 volts for more than 120 seconds in accordance with the requirements of NFPA 1901. The scale on the transmission temperature gauge shall read from 100 to 300 degrees °F with a red line zone indicating critical temperatures. A red indicator light in the gauge and an audible alarm shall indicate a high transmission temperature.

The light bar portion of the message center shall include twenty-eight (28) LED backlit indicators. The lightbar shall be split with fourteen (14) indicators on each side of the LCD message screen. The lightbar shall contain the following indicators and produce the following audible alarms when supplied in conjunction with applicable configurations:

RED INDICATORS
Stop Engine - indicates critical engine fault
Air Filter Restricted - indicates excessive engine air intake restriction
Park Brake - indicates parking brake is set
Seat Belt - indicates a seat is occupied and corresponding seat belt remains unfastened
Low Coolant - indicates critically low engine coolant
Cab Tilt Lock - indicates the cab tilt system locks are not engaged.

AMBER INDICATORS
Malfunction Indicator Lamp (MIL) - indicates an engine emission control system fault
Check Engine - indicates engine fault
Check Transmission - indicates transmission fault
Anti-Lock Brake System (ABS) - indicates anti-lock brake system fault
High exhaust system temperature – indicates elevated exhaust temperatures

Water in Fuel - indicates presence of water in fuel filter
Wait to Start - indicates active engine air preheat cycle
Windshield Washer Fluid – indicates washer fluid is low
DPF restriction - indicates a restriction of the diesel particulate filter
Regen Inhibit-indicates regeneration of the DPF has been inhibited by the operator
Range Inhibit - indicates a transmission operation is prevented and requested shift request may not occur.
SRS - indicates a problem in the supplemental restraint system
Check Message - indicates a vehicle status or diagnostic message on the LCD display requiring attention.

GREEN INDICATORS

Left and Right turn signal indicators
ATC - indicates low wheel traction for automatic traction control equipped vehicles, also indicates mud/snow mode is active for ATC system
High Idle - indicates engine high idle is active.
Cruise Control - indicates cruise control is enabled
OK to Pump - indicates the pump is engaged and conditions have been met for pump operations
Pump Engaged - indicates the pump transmission is currently in pump gear
Auxiliary Brake - indicates secondary braking device is active

BLUE INDICATORS

High Beam indicator

AUDIBLE ALARMS

Air Filter Restriction
Cab Tilt Lock
Check Engine
Check Transmission
Open Door/Compartment
High Coolant Temperature
High or Low System Voltage
High Transmission Temperature
Low Air Pressure
Low Coolant Level
Low DEF Level
Low Engine Oil Pressure
Low Fuel
Seatbelt Indicator
Stop Engine
Water in Fuel
Extended Left/Right Turn Signal On
ABS System Fault

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BACKLIGHTING COLOR

The instrumentation gauges and the switch panel legends shall be backlit using red LED backlighting.

CAMERA REAR

One (1) Audiovox Voyager heavy duty box shaped HD camera shall be shipped loose for OEM installation in the body to afford the driver a clear view to the rear of the vehicle.

The camera system shall include a one-way communication device that shall be an integral part of the rear camera for the use of voice commands directly to the driver. The rear camera display shall activate when the vehicle's transmission is placed in reverse.

CAMERA DISPLAY

The camera system shall be wired to a single Weldon Vista display located on the driver's side dash. The camera system display can be activated through the Vista display panel.

CAMERA SPEAKER

The rear camera shall be wired to speaker(s) in the cab and shall audible to the driver and officer. There shall be a virtual button provided on the Vista display and control panel to deactivate the speaker(s).

COMMUNICATION ANTENNA

An antenna base, for use with an NMO type antenna, shall be mounted on the right hand front corner of the cab roof so not to interfere with light bars or other roof mounted equipment installed by chassis builder. The antenna base shall be an Antenex model MABVT8 made for either a 0.38 inch or 0.75 inch receiving hole in the antenna and shall include 17.00 foot of RG58 A/U cable with no connector at the radio end of the cable. The antenna base design provides the most corrosion resistance and best power transfer available from a high temper all brass construction and gold plated contact design. The antenna base shall be chassis builder supplied.

COMMUNICATION ANTENNA CABLE ROUTING

The antenna cable shall be routed from the antenna base mounted on the roof to the area behind and underneath the right hand front seat.

CAB EXTERIOR PROTECTION

The cab face shall have a removable plastic film installed over the painted surfaces to protect the paint finish

during transport to the body manufacturer.

FIRE EXTINGUISHER

A 2.50 pound D.O.T approved fire extinguisher with BC rating shall be shipped loose with the cab.

DOOR KEYS

The cab and chassis shall include a total of four (4) door keys for the manual door locks.

WARRANTY

Purchaser shall receive a Custom Chassis Two (2) Years or 36,000 Miles limited warranty in accordance with, and subject to, warranty certificate RFW0102. The warranty certificate is incorporated by reference into this proposal, and included with this proposal or available upon request.

CHASSIS OPERATION MANUAL

There shall be two (2) digital copies of the chassis operation manual provided with the chassis. The digital data shall include a parts list specific to the chassis model.

ENGINE AND TRANSMISSION OPERATION MANUALS

The following manuals specific to the engine and transmission models ordered will be included with the chassis in the ship loose items:
(1) Hard copy of the Engine Operation and Maintenance manual with digital copy
(1) Digital copy of the Transmission Operator's manual
(1) Digital copy of the Engine Owner's manual

CAB/CHASSIS AS BUILT WIRING DIAGRAMS

The cab and chassis shall include two (2) digital copies of wiring schematics and option wiring diagrams.

SALES TERMS

The sale of the chassis shall be governed by the terms contained on the Sales Terms – Acceptance of Purchase Order document, a copy of which is attached to this option.

DRIVELINE LAYOUT CONFIRMATION

During the design phase of the chassis the Spartan Chassis driveline engineer shall submit the driveline layout

to an OEM engineer to review the chassis design for any potential problems integrating the OEM body to the chassis. The OEM engineer shall provide approval to the driveline engineer prior to driveline bills of materials being released.

EXHAUST HEAT SHIELD

There shall be an exhaust heat shield added to the chassis provided exhaust. The shield shall terminate past the front compartment and shall incorporate a heavy-duty spray on insulation under R1. With this shield, the temperature of the front compartment shall not exceed the ambient temperature.

The heat shield shall be attached to the underside of the body utilizing a flexible bracket.

CAB ACCESSORY MOUNTING PANEL

An accessory mounting panel shall be installed to the engine cover in the chassis cab between the officer and driver.

The panel shall be constructed of .25 inch (6.35 mm) smooth aluminum supported by poly spacers for ease of mounting miscellaneous equipment items.

STORAGE ACCESSORY FINISH

The accessory shall be a painted finish/color equivalent to the chassis interior unless specified otherwise.

REAR FACING STORAGE BOX

There shall be one (1) rear facing storage box, fabricated out of .125 inch (3.18 mm) smooth aluminum installed behind the engine tunnel in the chassis cab.

The height of the compartment shall match the height of the engine tunnel and the width shall be as wide as possible between the rear facing outer seat risers x 15.00 inches (381 mm) front to back at the base and contoured to match the engine tunnel

The interior of the compartment shall feature a natural aluminum finish.

Vertically mounted Unistrut shall be installed inside the EMS storage compartment to accommodate the installation of shelving in the upper half of the compartment.
There shall be a 1.00 inch high lip included around the top perimeter of the EMS compartment specified to retain equipment stored on top of the compartment by the Fire Department.

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EMS COMPARTMENT NETTING

A cargo net, black in color, shall be provided and installed on the opening of the EMS compartment. The cargo net enclosure shall be secured along the lower edge. The net shall drop out of the way for easy cabinet access. The cargo net covering the EMS compartment shall include side push clip style fasteners along the top of the cabinet for ease of entry.

EMS COMPARTMENT LIGHTING

One (1) LED Tube light model #RX-15T16-5050 shall be installed in accordance with the compartment height to offer the best lighting in the EMS cabinet.

EMS COMPARTMENT LIGHTING ACTIVATION

The light(s) in each compartment shall be activated by a rocker switch inside the EMS compartment.

EMS COMPARTMENT SHELF

There shall be one (1) shelf in the cab EMS compartment. The shelf shall be fabricated of .188 inch (4.76 mm) thick aluminum sheet material with the outside and inside edges flanged up to prevent equipment from sliding off. The shelf shall be as wide as possible to allow proper attachment to unistrut channels and shall be adjustable up and down.

The shelf shall feature a natural finish.

EMS COMPARTMENT(S) EXTERIOR FINISH

The exterior of the EMS compartment(s) specified shall feature a painted finish/color equivalent to the chassis interior unless specified otherwise.

CHASSIS REQUIRED LABELING

Signs that state "Occupants must be seated and belted when apparatus is in motion" shall be provided.

They shall be visible from each seating position.

There shall be a lubrication plate mounted inside the cab listing the type and grade of lubrication used in the following areas on the apparatus and chassis:

- Engine oil

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- Engine Coolant
- Transmission Fluid
- Pump Transmission Lubrication Fluid
- Drive Axle Lubrication Fluid
- Generator Lubrication Fluid (where applicable)
- Tire Pressures

Where applicable, style/brand of labels to match call out in plumbing

APPARATUS INFORMATION LABEL

There shall be a high-visibility label installed in a location clearly detectable to the driver while in the seated position.

The label shall indicate the following specified information.

Overall Height (feet and inches)
Overall Length (feet and inches)
Overall GVWR (tons or metric tons)

CAB TILT CONTROL

There shall be a cab tilt pendant control provided and installed on the right side of the apparatus. The pendant shall be located directly behind the lower auxiliary pump access panel, accessible through a small, hinged door secured with a push button style latch.

A label shall be provided that states "CAB TILT".

There shall also be a cab tilt instruction plate located as close as possible to the control pendant for ease of operation.

HEAT EXCHANGER

The supplementary heat exchanger cooling system shall be provided and installed to the discharge side of the fire pump through to the engine compartment without intermixing, for absorption of excess heat.

The heat exchanger shall be adequate in size to maintain safe operating temperature of the coolant in the pump drive engine and not in excess of the engine manufacturer's temperature rating, under all pumping conditions. Appropriate drains shall be provided to allow draining the heat exchanger to prevent damage from freezing.

HELMET RESTRAINTS

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All NFPA required helmet restraints will be supplied and installed by the Fire Department prior to the truck being placed into service.

MUD FLAPS

Heavy-duty black rubber mud flaps with manufactures logo shall be provided behind the rear wheels. The mud flaps shall be bolted in place.

PUMP COMPARTMENT

The complete apparatus pump compartment shall be constructed of a combination of structural tubing and formed sheet metal. The same materials used in the body shall be utilized in the construction of the pump compartment. The structure shall be welded utilizing the same A.W.S. Certified welding procedure as used on the structural body module. These processes shall ensure the quality of structural stability of the pump compartment module.

The pump compartment module shall be separated from the apparatus body with a gap. This gap is necessary to accommodate the flexing of the chassis frame rails that are encountered while the vehicle is in transit so that harmful torsional forces are not transmitted into the structural framework.

VIBRA-TORQ™ PUMP MODULE MOUNTING SYSTEM

The entire pump module assembly shall be mounted so that it “floats” above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable pump module mounting system.

The pump module substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each pump compartment mount bracket shall be mounted to the side chassis frame flange with two 5/8”-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the pump module, apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All pump module to chassis connections shall be bolted so that in the event of an

accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature pump module structural failures. The Vibra-Torq™ mounting system shall have a lifetime warranty.

PUMP COMPARTMENT WORK LIGHT

One (1) Weldon LED work light model #2631-0000-30 shall be installed in the pump compartment module to illuminate the piping and plumbing components.

The light shall be activated by a weather resistant toggle switch installed inside the pump compartment.

ENCLOSED LEFT SIDE OPERATORS PANEL & PUMP PANEL

The pump operator's panel shall be located on the left side of the apparatus pump a compartment and accessible through a roll-up door. The panel shall be split into an upper and lower section.

The material of the operator's panel shall match that of the overlays and right-side panels specified. The upper panel shall house gauges and controls and be hinged to allow easy access to components. The door shall have a stainless steel hinge, dual point chrome push button latches and a rubber seal provided to prevent excessive moisture from entering or leaving the pump house.

The lower panel on the left side shall be a removable panel attached with mechanical fasteners.

Valve controls shall be immediately adjacent to its respective gauge. The valve controls shall be properly labeled, and color coded for ease of use. All markings shall be permanent in nature.

VALVE CONTROL - T-HANDLE PULL ASSEMBLY

Unless specified otherwise, the discharge valves shall be controlled from an Innovative Controls side mount valve control assembly. The ergonomically designed handle shall be chrome-plated with recessed areas for name plate and color code. A .75 inch (19.5 mm) diameter hardcoat anodized aluminum control rod and housing shall, together with a stainless spring steel locking mechanism, eliminate valve drift. Teflon impregnated bronze bushings in both ends of the rod housing shall minimize rod deflection, never need lubrication, and ensure consistent long-term operation. The control assembly shall include a decorative chrome-plated panel-mounting bezel. The valve operating mechanism will indicate the position of the valve at all times.

PUMP PANEL LIGHTS

There shall be adequate illumination provided at the side pump panels with the installation of two (2) brushed

stainless steel shielded light assemblies.

One (1) shield on the left side mounted to the operator's panel and one (1) on the right side mounted between the two (2) panels.

Each shield shall contain the maximum number of lights permitted in the space available for 9.00 inch (21cm) LED Tube lights model #RX-15T16-5050-21CM.

PUMP PANEL LIGHT ACTIVATION

One (1) pump panel light at the operator's panel shall be illuminated at the time the pump is ready to pump and it is "OK TO PUMP". The Pump shift has been completed and the chassis automatic transmission is engaged.

The remaining lights shall be controlled by a switch located on the side operator's panel.

SPEEDLAY HOSE BEDS

Three (3) vertically stacked speedlay hose beds shall be provided in the forward portion of the pump compartment module. The speedlay hose beds shall be constructed as an integral part of the pump compartment tubular structure. Stainless steel scuff plates shall be installed at the bottom and at the vertical edges of the speedlay openings to protect the hose and hose ends.

The speedlay hose beds shall be tall and wide enough for laying each hose size specified in the plumbing specifications.

The speedlay hose beds shall span the entire width of the pump compartment module. Slotted flooring shall be provided for hose area drainage.

PUMP COMPARTMENT SERVICE

The front portion of the pump compartment structure shall be overlaid entirely with aluminum diamond plate fastened with mechanical fasteners.

There shall not be any service access openings provided in this area of the module.

REMOVABLE SPEEDLAY TRAYS

Removable speedlay hose bed trays shall be provided to facilitate hose loading. The speedlay hose beds trays shall be accessible from either side and be easily removed from the pump compartment tubular structure.

A removable speedlay hose bed tray shall be provided for each bay specified.

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BLACK POLY SPEEDLAY TRAYS

The speedlay trays shall be made of .50-inch black poly material.

Each tray shall have vertical and horizontal hand holds for ease of handling. Slots shall be provided in the floor of the tray for hose drainage.

SPEEDLAY GRAB LOOPS

Each speedlay tray shall have a grab loop on each end for easy removal and loading of the tray into the speedlay bay.

PUMP COMPARTMENT WIDTH

The width of the pump compartment (front to back) shall be 64.00 inches (1.63 m).

PAINTED PUMP HOUSE EXTERIOR SURFACES

The side exterior surfaces of the pump compartment module will be painted to match the body job color.

PUMP HOUSE INTERIOR SURFACES

The interior surfaces of the pump compartment module shall match the body side compartment finish.

R·O·M ROLL-UP DOOR

A R•O•M Corporation Series IV roll-up shutter door shall be installed. Each shutter slat, track, bottom rail, and drip rail shall be constructed from anodized 6063 T6 aluminum.

Shutter slats shall feature a double wall extrusion 0.315 inches thick with a concave interior surface to minimize loose equipment jamming the shutter door closed. Shutter slats shall feature an interlocking end shoe to prevent side to side binding of the shutter door during operation. Slats must have interlocking joints with an inverted locking flange. Slat inner seal shall be a one piece PVC extrusion; seal design shall be such to prevent metal to metal contact while minimizing dirt and water from entering the compartment.

Shutter door track shall be one piece design with integral overlapping flange to provide a clean finished look without the need of caulk. Door track shall feature an extruded Santoprene rubber double lip low profile side seal with a silicone co-extruded back to reduce friction during shutter operation.

Shutter bottom rail shall be a one piece double wall extrusion with integrated finger pull. Finger pull shall be curved upward with a linear striated surface to improve operator grip while operating the shutter door. Bottom rail shall have a smooth contoured interior surface to prevent loose equipment from jamming the shutter door. Bottom rail seal shall be made from Santoprene; it will be a double “V” seal to prevent water and debris from entering compartment. Bottom rail lift bar shall be a one piece “D” shaped aluminum extrusion with linear striations to improve operator grip during operation. Lift bar shall have a wall thickness of 0.125 inches. Lift bar shall be supported by no less than two pivot blocks; pivot blocks shall be constructed from Type 66 Glass filled reinforced nylon for superior strength. Bottom rail end blocks shall have incorporated drain holes which will allow any moisture that collects inside the extrusion to drain out.

Shutter door shall have an enclosed counterbalance system. Counterbalance system shall be 4.00 inches in diameter and held in place by 2 heavy duty 18 gauge zinc plated plates. Counterbalance system shall have 2 over-molded rubber guide wheels to provide a smooth transition from vertical track to counterbalance system.

PUMP COMPARTMENT DOOR FINISH

PUMP COMPARTMENT DOORS WET PAINTED

The side compartment roll up doors shall be wet finish painted to color match the apparatus body. The door track and trim shall be satin aluminum finish.

ROLL-UP DOOR PROTECTORS

There shall be a protective cover installed under each body side compartment door roll to protect the door in the rolled up position.

ROLL-UP DOOR PROTECTOR FINISH

The roll-up door protector shall be left Natural finish.

DOOR ASSIST STRAPS

There shall be nylon straps installed on both the left and right body side 'high side' compartment doors to assist in closing the door. The strap shall be attached to each door and permanently mounted to the rearward wall with footman loops using Nutserts, halfway between the top and bottom of the compartment.

DOOR OPEN INDICATOR

Each roll up door shall have an integral door open indicator magnet in the lift bar.

If the door is not properly closed and the parking brake is released, it shall activate the “hazard light” in the cab

to alert the crew.

PUMP COMPARTMENT LIGHTING

Two (2) LED Tube light model #RX-15T16-5050, of maximum length available to fit the opening, shall be installed in each side of the pump compartment. The tube light shall be centered vertically along the forward side of the door framing.

The light in each compartment shall be on a separate circuit, turning on only those lights that have open compartment doors.

RIGHT SIDE PUMP PANELS STYLE

There shall be two (2) pump panels on the right side of the pump compartment, one (1) upper and one (1) lower. Each panel shall be accessible by a quick-release mechanical type latch, closing against a door seal. Both panels shall be easily removed for access to the pump for serviceability.

RIGHT & LEFT SIDE BLACK LAMINOL FINISHING FOR PANELS AND OVERLAYS

The panels for the pump compartment on the left and right side shall be made from heavy duty “Black Laminol" covered aluminum, capable of withstanding the conditions and effects of extreme weather and temperature changes.

The tubular structure shall be overlaid on each side of the pump compartment underneath the access panels and shall be made of “Black Laminol” covered aluminum.

SOFT SUCTION HOSE STORAGE

There shall be a recessed cavity on the left side of the pump compartment module integrated into the side panel to store a roll of 25 feet of 5.00 inch suction hose. The cavity shall be approximately 10.00 inches (254 mm) wide. The floor area shall have a light taper downward so assist in restraining the hose. Drain holes shall be provided in the rear corners.

COMPARTMENT LOCATION

The storage cavity shall be located forward of the steamer inlet on the pump panel.

VELCRO HOLD DOWN STRAP

There shall be one (1) Velcro strap type hold down installed on the storage area. The hold down will be used to secure the stored equipment in place during transit.

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HOSE COMPARTMENT STORAGE CAVITY INTERIOR FINISH

The interior of the hose storage compartment shall feature a painted black Superliner finish.

PUMP HOUSE STORAGE TRIM

The above storage compartment shall have black laminolcoated trim provided around the opening.

SOFT SUCTION HOSE STORAGE

There shall be a recessed cavity on the right side of the pump compartment module integrated into the side panel to store a roll of 25' of 5" suction hose. The cavity shall be approximately 10.00 inches (254 mm) wide. The floor area shall have a light taper downward so assist in restraining the hose and notched as required for exhaust configurations. Drain holes shall be provided in the rear corners.

COMPARTMENT LOCATION

The storage cavity shall be located forward of the steamer inlet on the pump panel.

VELCRO HOLD DOWN STRAP

There shall be one (1) Velcro strap type hold down installed on the storage area. The hold down will be used to secure the stored equipment in place during transit.

HOSE COMPARTMENT STORAGE CAVITY INTERIOR FINISH

The interior of the hose storage compartment shall feature a painted black Superliner finish.

PUMP HOUSE STORAGE TRIM

The above storage compartment shall have black laminolcoated trim provided around the opening.

RUNNING BOARDS

The pump compartment running boards shall be made of a structural tubular framework to create an area for a solid floor for the enclosed pump compartment module.

The running boards structure shall be integrated to the pump compartment structure only, eliminating any pump compartment to body interference. This is essential in keeping a truly 'modular' configuration.

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PUMP COMPARTMENT FLOORS

The side running boards of the pump compartment module shall be smooth material with a finish matching the body side compartments. There shall not be a stepping surface provided at the running board with the enclosed pump module.

APPARATUS PLUMBING LABELING

Innovative Controls verbiage tag bezels shall be installed. The bezel assemblies will be used to identify apparatus components. These tags shall be designed and manufactured to withstand the specified apparatus service environment and shall be backed by a warranty equal to that of the exterior paint and finish. The verbiage tag bezel assemblies shall include a chrome-plated panel-mount bezel with durable easy-to-read UV resistant polycarbonate inserts featuring the specified verbiage and color coding. These UV resistant polycarbonate verbiage and color inserts shall be subsurface screen printed to eliminate the possibility of wear and protect the inks from fading. Both the insert labels and bezel shall be backed with 3M permanent adhesive, which meets UL969 and NFPA standards.

RADIO BOX

There shall be a weather resistant radio box recess mounted in the left side upper portion above pump operator's panel. The radio box shall be approximately 7.00 inches tall by 6.50 inches wide by 5.00 inches deep.

PRESSURE GOVERNOR and ENGINE MONITORING DISPLAY

Fire Research PumpBoss series PBA400-A00 pressure governor and monitoring display kit shall be installed. The kit shall include a control module, intake pressure sensor, discharge pressure sensor, and cables. The control module case shall be waterproof and have dimensions not to exceed 6 3/4" high by 4 5/8" wide by 1 1/2" deep. The control knob shall be 2" in diameter with no mechanical stops, have a serrated grip, and a red idle push button in the center. It shall not extend more than 1 3/4" from the front of the control module. Inputs for monitored information shall be from a J1939 databus or independent sensors. Outputs for engine control shall be on the J1939 databus or engine specific wiring. Inputs to the control module from the pump discharge and intake pressure sensors shall be electrical.

The following continuous displays shall be provided:

- Engine RPM; shown with four daylight bright LED digits more than 1/2" high
- Check engine and stop engine warning LEDs
- Oil pressure; shown on a dual color (green/red) LED bar graph display
- Engine coolant temperature; shown on a dual color (green/red) LED bar graph display
- Transmission Temperature: shown on a dual color (green/red) LED bar graph display
- Battery voltage; shown on a dual color (green/red) LED bar graph display
- Pressure and RPM operating mode LEDs

Pressure / RPM setting; shown on a dot matrix message display
Throttle ready LED.

The dot-matrix message display shall show diagnostic and warning messages as they occur. It shall show monitored apparatus information, stored data, and program options when selected by the operator. All LED intensity shall be automatically adjusted for day and nighttime operation.

The program shall store the accumulated operating hours for the pump and engine to be displayed with the push of a button. It shall monitor inputs and support audible and visual warning alarms for the following conditions:

High Battery Voltage
Low Battery Voltage (Engine Off)
Low Battery Voltage (Engine Running)
High Transmission Temperature
Low Engine Oil Pressure
High Engine Coolant Temperature
Out of Water (visual alarm only)
No Engine Response (visual alarm only).

The program features shall be accessed via push buttons located on the front of the control module. There shall be a USB port located at the rear of the control module to upload future firmware enhancements.

The governor shall operate in two control modes, pressure and RPM. No discharge pressure or engine RPM variation shall occur when switching between modes. A throttle ready LED shall light when the interlock signal is recognized. The governor shall start in pressure mode and set the engine RPM to idle. In pressure mode the governor shall automatically regulate the discharge pressure at the level set by the operator. In RPM mode the governor shall maintain the engine RPM at the level set by the operator except in the event of a discharge pressure increase. The governor shall limit a discharge pressure increase in RPM mode to a maximum of 30 psi. Other safety features shall include recognition of no water conditions with an automatic programmed response and a push button to return the engine to idle.

The pressure governor and monitoring pressure display shall be programmed to interface with a specific engine.

INTAKE PRESSURE RELIEF VALVE

A Task Force Tips model #A18XX pressure relief valve shall be provided. The valve shall have an easy to read adjustment range from 90 to 300 PSI with easy to read 90, 125, 150, 200, 250, 300 psi settings and an “OFF” position. Pressure adjustment can be made utilizing a ¼” hex key, 9/16” socket or 14mm socket.

For corrosion resistance the cast aluminum valve shall be a hardcoat anodized with a powder coat interior and exterior finish. The valve shall meet (NFPA) 1901, Standard for Automotive Fire Apparatus, requirements for pump inlet relief valves. The unit shall be covered by a five year warranty. The valve shall be preset at 125 PSI (860 kPa) suction inlet pressure, unless otherwise shop noted. The valve shall be installed inside the pump compartment where it will be easily accessible for future adjustment. The excess water shall be plumbed to the

atmosphere and shall dump on the opposite side of the pump operator.

For normal pumping operations, the relief valve shall not be capped and there shall be a placard stating "DO NOT CAP" installed.

PRESSURE GOVERNOR and MONITORING DISPLAY BUZZER

Fire Research PumpBoss –Z1 option for an audible alarm buzzer shall be installed. The buzzer shall sound when a signal from the PumpBoss activates it.

MASTER GAUGES

Class 1 4.50 inch (115 mm) gauges shall be supplied for the master intake and master discharge gauges.

The gauges shall be model LFP410.

GAUGE SCALE

The master intake gauge shall be marked for a reading from -30 to 400 PSI and the master discharge shall be marked for reading a discharge pressure of 0 to 400 PSI.

GAUGE FACE COLOR

Each gauge shall have black markings on a white face.

TESTING PORTS

Test port connections for pressure and vacuum shall be provided at the pump operator's panel. One (1) shall be connected to the intake side of the pump, and the other to the discharge manifold side of the pump.

Each port shall have 0.25 inch (6.35 mm) standard pipe thread connection and be manufactured of non-corrosive polished stainless steel or brass plugs.

WATER TANK LEVEL GAUGE

One (1) Innovative Controls SL Plus Tank Level Monitor System shall be provided on the pump operator's control panel. The system shall include one (1) electronic display module, a stainless steel pressure transducer sending unit, and wiring with water-tight plug terminations not requiring sealing grease. The display shall include a decorative chrome-plated panel-mounting bezel.

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The master display module shall show the tank level using 16 super-bright easy-to-see LEDs. Tank level indication shall be achieved by the appropriate illumination of 4 horizontal rows of LEDs, with 4 LEDs per row. Full and near-full levels shall be indicated by the illumination of all 4 rows of LEDs, tank levels between 1/2 and 3/4 full shall be indicated by the illumination of the bottom 3 rows of LEDs, tank levels between 1/4 and 1/2 full shall be indicated by the illumination of the bottom 2 rows of LEDs, and tank levels between 1/4 full and near empty shall be indicated by the illumination of the bottom row of 4 red LEDs only. Tank levels between near empty and empty shall be indicated by flashing the bottom row of 4 red LEDs.

The master display shall have a backlit area at the top with an illuminated water icon.

CHASSIS INSTALLED TANK LEVEL GAUGE

The chassis shall include two (2) tank level gauges installed. These tank level gauges shall utilize a driver gauge installed to provide an accurate reading of the water tank level.

ADDITIONAL WATER LEVEL GAUGE

TANK LEVEL GAUGE

There shall be one (1) Whelen model PSTANK2 water tank level light provided with a black bezel. The tank level gauge shall indicate fluid level in the water tank. The light colors shall be from top to bottom; Green, Blue, Amber, and Red. These lights shall automatically turn off to indicate the water level in the booster tank in 1/4 increments. The tank level gauge shall utilize a pressure transducer and driver to provide an accurate reading of the water tank level.

TANK LEVEL GAUGE LOCATION

One (1) tank level readout shall be located at the rear of the vehicle, to the left side.

AIR HORN BUTTON

The air horn shall be activated by a red momentary rocker switch provided and installed on the pump operator's gauge panel. The air horn button shall be of weather resistance type and labeled “AIR HORN”.

ROCKER SWITCH PANEL

All specified lighting fixtures and electrical components activated at the pump operator's panel shall be activated by Carling W-series rocker style switches.

The switches shall be located on a separate matte black Innovative Controls 4-position electrical panel with chrome bezel, complete with backlit name tags describing the function of each individual switch.

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PUMP COMPARTMENT TOP OVERLAY

The top cap of the pump compartment shall be overlaid with materials of a non-slip .188 inch (4.76 mm) embossed aluminum diamond plate.

DUNNAGE AREA

A single wall .125 inch (3.18 mm) aluminum diamond plate dunnage area shall be provided above the pump house compartment for equipment mounting and storage space.

The dunnage area shall be as wide as possible from side to side, and as deep as allowed with the available space.

MIDSHIP PUMP

The pump shall have a capacity of 1500 gallons per minute, measured in U.S. Gallons. The pump shall be a Waterous model CXS single stage midship pump.

PUMP CASING

Two-piece; vertically-split high-tensile close-grained gray iron.

IMPELLER

Bronze impeller specifically designed for the fire service, Double hub bed to eliminate axial thrust, and accurately balanced for vibration-free running.

WEAR RINGS

Replaceable bronze wear rings to increase pump life and keep maintenance costs at a minimum.

IMPELLER SHAFT

Stainless steel, heat treated, precisely ground to size, and polished under shaft seal, supported by oil-lubricated ball bearings.

BEARINGS

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All bearings are oil or grease lubricated, ball-type, located outside the pump casting to accurately align and support the impeller shaft assembly. Bearings are deep groove type designed to carry both radial and axial thrust.

CERTIFICATION

The pump will perform and meet the following tests:
100% rated capacity @150 PSI
100% rated capacity @ 165 PSI
70% rated capacity @ 200 PSI
50% rated capacity @ 250 PSI

PUMP WARRANTY

Waterous Co shall provide a limited manufacturer's pump warranty to be free from defects, under normal use and service, for a period of seven (7) years from the date placed into service.

PUMP SEALS

The pump shall be equipped with self-adjusting, maintenance free mechanical shaft seals that shall not require manual adjustment. These seals shall be designed in a manner that they will remain functional enough to permit continued use of the pump in the unlikely event of a seal failure.

PUMP SHIFT

The drive unit shall be provided with an air pump shift system. The control valve shall be a spring-loaded guard lever that locks in "Road" or "Pump" mode.

To the left of the pump shift control, there shall be two indicator lights to show the position of the pump when the control is moved to "Pump" position. A green light shall be energized when the pump shift has been completed and shall be labeled "PUMP ENGAGED"; a second green light shall be labeled "OK TO PUMP" energized when both the pump shift has been completed and the chassis automatic transmission is engaged.

A third green indicator light shall be installed adjacent to the throttle on the pump operator's panel. This light shall be labeled "Throttle Ready".

In addition to this indicator light, an additional indication shall be provided to the pump operator at the panel when the pump is ready to pump. This additional indication shall be that one (1) of the operator's panel illumination lights will only activate when the "OK TO PUMP" indicator is lit.

AIR PUMP SHIFT LOCATION

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The pump shift shall be mounted in the "best fit" location as determined by the apparatus manufacture.

AIR PRIMER SYSTEM

The priming system shall be a Trident Emergency Products compressed air powered high efficiency, multi-stage, venturi-based Air Prime System.

All wetted metallic parts of the priming system are to be of brass and stainless steel construction. A single panel mounted control will activate the priming pump and open the priming valve to the pump.

The priming components shall be mounted above the highest priming point on the suction side of the pump to permit air removal and allow for drainage. The primer shall also automatically drain when the panel control actuator is not in operation. The inlet side of the primer shall include a brass ‘wye’ type strainer with removable stainless steel fine mesh strainer to prevent entry of debris into the primer body.

The system shall employ an 80 PSI (5.5 bar) pressure protection valve, located on the chassis auxiliary air tank.

The primer shall be covered by a five (5) year parts warranty.

PRIMER CONTROL

There shall be one (1) push button control to actuate the primer control valve at the operator's panel.

DISCHARGE AND INLET MANIFOLDS

A pump manifold inlet shall be provided on the pump as required for the layout.

The inlet(s) shall protrude up to 2.00 inches (50 mm) away from the side panels and maintain a low connection height.

A discharge manifold shall also be added to the pressure side of the pump to feed the specified discharge waterways.

MAIN PUMP INLET-LEFT SIDE

A 6.00 inch (150 mm) pump manifold inlet shall be provided on the left side of the pump. The inlet shall protrude up to 2.00 inches (50 mm) away from the side panel and maintain a low connection height.

The main pump inlet shall have National Standard Threads and includes a removable screen designed to provide cathodic protection for reducing deterioration in the pump.

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6" CHROME PLATED BRONZE CAP

There shall be one (1) 6.00 inch (150 mm) long handled chrome plated self-venting lug cap installed on the Steamer Inlet.

The cap(s) shall be National Standard Thread.

MAIN PUMP INLET-RIGHT SIDE

A 6.00 inch (150 mm) pump manifold inlet shall be provided on the right side of the pump. The inlet shall protrude up to 2.00 inches (50 mm) away from the side panel and maintain a low connection height.

The main pump inlet shall have National Standard Threads and includes a removable screen designed to provide cathodic protection for reducing deterioration in the pump.

6" CHROME PLATED BRONZE CAP

There shall be one (1) 6.00 inch (150 mm) long handled chrome plated self-venting lug cap installed on the Steamer Inlet.

The cap(s) shall be National Standard Thread.

MASTER DRAIN VALVE

A Trident manifold type drain valve shall be installed in the pump compartment. All pump drains shall be connected to the master drain valve. The drain valve shall be controlled from the left side lower pump house sill. The control shall be a hand wheel knob marked “open” and “closed”.

The drain shall be located such that it shall not interfere with pumping operations or function such as soft suction hoses, etc. nor shall it protrude past the outer edge of the apparatus, to prevent damage to the valve.

In some cases, it is necessary to locate the master drain in a secondary location to ensure proper draining. If no lower or vertical sill exists, the drain shall be located below the bottom outside edge of the hose body near the forward most corner on the driver’s side hose body. The drain shall not protrude past the outer edge of the body, thus preventing damage to the valve.

PUMP COOLING LINE

There shall be a .38 inch (9.5 mm) line running from the pump to the water tank to assist in keeping the pump water from overheating. A valve shall be installed on the operator's panel.

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PUMP ANODE

One (1) pump anode shall be installed in the suction pumping system of the apparatus, to prevent damage from galvanic corrosion within the pump system.

STAINLESS STEEL PLUMBING

All auxiliary suction and discharge plumbing related fittings, and manifolds shall be fabricated with a minimum of 3.00 inch (77 mm), or greater as required by design, schedule 40 stainless steel pipe; brass or high pressure flexible piping with stainless steel couplings. Galvanized components and/or iron pipe shall NOT be accepted to ensure long life of the plumbing system without corrosion or deterioration of the waterway system. Where waterway transitions are critical (elbows, tees, etc.), no threaded fittings shall be allowed to promote the smooth transition of water flow to minimize friction loss and turbulence. All piping components and valves shall be non-painted, unless otherwise specified. All piping welds shall be wire brushed and cleaned for inspection and appearance.

The high pressure flexible piping shall be black SBR synthetic rubber hose with 300 PSI working pressure and 1200 PSI burst pressure for flexible piping sizes 1.50 inches (38 mm) through 4.00 inches (100 mm). Sizes .75 inch (19 mm), 1.00 inch (25 mm) and 5.00 inches (125 mm) are rated at 250 PSI working pressure and 1000 PSI burst pressure. All sizes are rated at 30 in HG vacuum. Reinforcement consists of two plies of high tensile strength tire cord for all sizes and helix wire installed in sizes 1.00 inch (25 mm) through 5.00 inches (125 mm) for maximum performance in tight bend applications. The material has a temperature rating of -40 degrees Fahrenheit to +210 degrees Fahrenheit.

The stainless steel full flow couplings are precision machined from high tensile strength stainless steel. All female couplings are brass. Mechanical grooved and male .75 inch (19 mm) and 1.00 inch (25 mm) couplings are brass. A high tensile strength stainless steel ferrule with serrations on the I.D. is utilized to assure maximum holding power when fastening couplings to hose.

PUMP HOUSE LINE PROTECTION

All drain lines for the discharges, suctions, ABS discharge gauge lines and any other appropriate connections in the pump house area shall have a protective cover provided on the lines in the required areas of the lines to prevent the lines from rubbing on any other components in the pump house area.

All drain lines, ABS lines, high pressure discharge lines and electrical wiring in the pump house area shall be properly and neatly routed, wire tied, and rubber coated “P” clamped, to keep the items secured.

DRAIN VALVES

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An Innovative Controls 3/4" quarter turn drain valve shall be included on each discharge, gated intake, and steamer valve (if applicable). A side stem, long stroke chrome plated lift handle shall be provided on the drain valve to facilitate use with a gloved hand. The drain valve shall have an ergonomically designed handle with a recessed verbiage tag area easily read by the operator before opening.

The drain valve shall be connected to the valve with a flexible hose that is routed in such a manner as to assure complete drainage to below the apparatus.

LEFT SIDE INLET

There shall be one (1) gated suction inlet with .75 inch (19mm) bleeder installed on the left side of the apparatus with the following specified components.

INTAKE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with stainless steel ball.

INTAKE VALVE CONTROL

The intake control valve shall be a 'swing out type' direct operation manual lever actuator at the valve.

INTAKE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

SUCTION/INTAKE TERMINATION

The termination shall include the following components:

One (1) 2.50 inch (65 mm) NST swivel female straight adapter with screen

One (1) 2.50 inch (65 mm) self-venting plug, secured by a chain

INLET LOCATION

The inlet shall be located on the pump panel in the forward position.

LEFT SIDE DISCHARGE

There shall be two (2) gated discharges installed on the left side of the apparatus with the following specified

components.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The control valve shall be a ‘swing out type’ direct operation manual lever actuator at the valve.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female swivel by male with 45 degree polished elbow

One (1) 2.50 inch (65 mm) female self-venting cap, secured by a chain

RIGHT SIDE DISCHARGE

There shall be one (1) gated discharge installed on the right side of the apparatus with the following specified components.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

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DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female swivel by male with 45 degree polished elbow

One (1) 2.50 inch (65 mm) female self-venting cap, secured by a chain

RIGHT SIDE MASTER DISCHARGE

There shall be one (1) master discharge installed on the right side of the apparatus provided with the following specified components.

DISCHARGE VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series slo-cloz swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 3.00 inch (77 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 3.00 inch (77 mm) NST adapter

One (1) 3.00 inch (77 mm) NST female swivel by 5.00 inch (125 mm) Storz with 30 degree elbow

One (1) 5.00 inch (125 mm) Storz cap, secured by a chain

LEFT REAR DISCHARGE

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There shall be one (1) gated discharge installed on the left rear of the apparatus with the following specified components.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) Male NST adapter

One (1) 2.50 inch (65 mm) NST female swivel by male with 45 degree polished elbow

One (1) 2.50 inch (65 mm) female self-venting cap, secured by a chain

SPEEDLAYS/PRE-CONNECT PLUMBING

Chiksan swivels shall be installed above each plumbed speedlay hose bed, accessible enough for the hose couplings to be tightened onto the chiksans.

The chiksan swivels shall swing from left to right to allow the attached hose to be deployed from either side.

1 3/4" SPEEDLAY

A speedlay with the following specified components shall be provided for up to 200 feet (60 m) of 1.75 inch (44.4 mm) hose.

There shall be a total of two (2) provided.

DISCHARGE VALVE

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A 2.00 inch (50 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.00 inch (50 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.00 inch (50 mm) NPT x 1.50 inch (38 mm) NST brass chiksan swivel

2 1/2" SPEEDLAY

A speedlay with the following specified components shall be provided for up to 200 feet (60 m) of 2.50 inch (63.5 mm) hose.

There shall be a total of one (1) provided.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

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One (1) 2.50 inch (65 mm) NPT x 2.50 inch (65 mm) NST brass chiksan swivel

SPEEDLAY TRIM

Brushed stainless steel trim shall be installed at the openings on each side of the speedlay hose bed area. The trim shall extend 8.00 inches into the speedlay bay opening from the outer edge. The trim shall reduce the chaffing of the hose jacket on the edges of the bay area.

SPEEDLAY ROLLERS

Stainless steel hose roller guides shall be installed along the bottom edge for the speedlay bay opening on each side of the speedlay hose bed area. The rollers shall aid in hose deployment and reduce the chaffing of the hose jacket on the edges of the bay area.

CARGO NETTING COVERS SPEEDLAY ENDS

The speedlay hose bed area shall have individual cargo netting end covers provided and installed for each bay opening on both sides of the apparatus. The cargo netting shall be secured on the bottom edge with extrusion and with side push style clips at the top for ease of entry.

SPEEDLAY COVER COLOR

The speedlay hose bed covers shall be black in color.

2 1/2" PRE-CONNECT

One (1) hose bed pre-connect with the following specified components shall be provided for 2.50 inch (63.5 mm) hose on the left side of the hose bed.

DISCHARGE VALVE

A 2.50 inch (65 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.50 inch (65 mm) piping and shall incorporate a manual drain control installed

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below the pump area for ease of access.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.50 inch (65 mm) NPT x 2.50 inch (65 mm) MNST chrome plated brass fitting

PRE-CONNECT LOCATION

The discharge shall terminate to the left side lower corner of the hose bed header wall approximately 8.00 inches, on center, above the hose bed floor.

DECK GUN MONITOR WATERWAY

There shall be one (1) deck gun monitor waterway installed on the apparatus with the following components.

DISCHARGE VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series slo-cloz swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DELUGE PLUMBING

The deluge waterway shall consist of 3.00 inch (77 mm) piping and shall be drained with an auto-drain located at the lowest point of the waterway plumbing if required.

DELUGE PIPE LOCATION

The deluge pipe shall be located up through the pump compartment, at the center location.

DELUGE WATERWAY TERMINATION

The deluge waterway shall be capped with a stainless steel cap to allow for future installation of deck gun monitor.

PIPE EXTENSION

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The deluge waterway plumbing shall extend 5.00 inches (125 mm) above the top of the pump compartment unless otherwise specified by overall height requirement. A cap on the plumbing shall be provided.

FRONT BUMPER DISCHARGE OUTLET

One (1) front bumper discharge outlet shall be provided and installed in the location specified.

DISCHARGE VALVE

A 2.00 inch (50 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

DISCHARGE VALVE CONTROL

The discharge shall be controlled from the pump operator's panel location.

DISCHARGE PLUMBING

The plumbing shall consist of 2.00 inch (50 mm) piping and incorporate a manual drain control installed below the pump area for ease of access. Auto-drain(s) shall be installed in the discharge piping at lowest point of the plumbed system.

DISCHARGE TERMINATION

The discharge termination shall include the following components:

One (1) 2.00 inch (50 mm) NPT x 1.50 inch (38 mm) NST, polished stainless steel chiksan swivel

FRONT BUMPER DISCHARGE LOCATION

The front bumper discharge shall be mounted on top of the gravel shield of the front bumper extension. The discharge shall be placed outboard of the frame rail extensions on the right side.

FRONT BUMPER DISCHARGE CHIKSAN GUARD

The front bumper discharge chiksan shall include a chiksan guard installed on the front bumper gravelshield to prevent the chiksan from hitting the cab. The guard shall be fabricated of aluminum diamond plate with a dual-action sanded finish on the opposite side of the diamonds. There shall be two (2) rubber bumper stops installed on the guard to protect the chrome chiksan.

DISCHARGE GAUGES

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A Class 1 2.50 inch (90 mm) gauge shall be supplied for reading the pressure of each discharge greater than 1.50 inches (38 mm) in diameter, unless otherwise specified.

The gauge shall be a model LFP200.

GAUGE SCALE

Each gauge shall be marked for reading a pressure range of 0-400 PSI.

GAUGE FACE COLOR

Each gauge shall have black markings on a white face.

BEZELS FOR 2.5" DISCHARGE GAUGES

Highly-polished stainless steel Innovative Control bezels shall be provided around each of the 2.50 inch (65 mm) discharge pressure gauges to prevent corrosion and protect lenses and gauge cases. The gauges shall be installed into decorative chrome-plated mounting bezels that incorporate valve identifying verbiage and/or color labels.

TANK TO PUMP LINE

The connection between the tank and the pump shall be capable of the flow recommendations as set forth in (NFPA) 1901, Standard for Automotive Fire Apparatus, latest revision and shall be tested to those standards when the pump is being certified.

One (1) non-collapsible flexible hose and valve shall be incorporated into the tank to pump plumbing to allow movement in the line as the chassis flexes to avoid damage during normal road operation. Four (4) inch stainless steel schedule 10 piping shall be used to complete the connection from the tank to pump valve to the water tank.

TANK TO PUMP CHECK VALVE

There shall be a tank to pump check valve, conforming to NFPA standard requirements to prevent water from back flowing at an excessive rate if the pump is being supplied from a pressurized source. The check valve shall be mounted as an integral part of the pump suction extension. A hole up to .25 inch (6.00 mm) is allowable in the check valve to release steam or other pressure buildup so that the void between the valve and check valve may drain of water that could be subject to freezing.

TANK TO PUMP VALVE

A 3.00 inch (77 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

VALVE CONTROL

The valve shall be controlled from the pump operator's panel location.

TANK FILL LINE

One (1) 2.00 inch (50.80 mm) tank fill/recirculating line shall be installed from the pump directly to the booster tank.

TANK FILL VALVE

A 2.00 inch (50 mm) Akron Brass 8000 series swing-out valve with a stainless steel ball.

VALVE CONTROL

The valve shall be controlled from the pump operator's panel location.

DIRECT TANK FILL

There shall be an external direct tank fill port installed on the rear of the apparatus.

A total quantity of two (2) shall be provided with the following specified components:

TANK FILL VALVE

A Fireman's Friend 2.50 inch (65 mm) valve(s) manufactured utilizing heavy gauge stainless steel casting (316), EPDM rubber seals, high-grade stainless steel springs and shafts, as well as stainless steel prevailing torque fasteners shall be installed.

A bleeder valve shall be included for the tank fill valve.

DIRECT TANK FILL PLUMBING

The plumbing shall consist of 2.50-inch (65 mm) piping.

DIRECT TANK FILL TERMINATION

The direct tank fill termination shall include the following components:

One (1) 2.50 inch (65 mm) FNPT x 2.50 inch (65 mm) FNST swivel straight adapter with screen

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One (1) 2.50 inch (65 mm) MNST x 2.50 inch (65 mm) FNST swivel elbow

One (1) 2.50 inch male self-venting plug, secured by a chain.

DIRECT TANK FILL LOCATION

There shall be a total of two (2) rear direct tank fills located on the rear of the apparatus. One (1) located on the left rear and right rear of the apparatus rear vertical body panels.

TRI-MAX™ *Space Frame Body* - ALUMINUM

The apparatus body shall be a Tri-Max™ **Space Frame** design, which serves as an incredibly durable, structural body framework. This framework acts as a series of beams and columns that support and protect the body and its contents. The space frame design provides maximum torsional resistance and load capabilities. The entire space frame structure shall be welded together utilizing an A.W.S. Certified welding procedure.

The space frame design shall also be required because it provides energy absorbing impact zones in the structure, thus providing increased safety to the rest of the apparatus and personnel on board. Documented proof of this extra safety shall be required upon request.

The Tri-Max™ body structure shall consist entirely of closed section members, except where the body is mounted to the chassis. Closed section members (such as square, rectangular, triangular, or round tubes) are required because they provide maximum strength and torsion rigidity. This solid tubular structural style of design ultimately adds longevity to the body structure by eliminating flex and twists in material, creating less stress and fatigue. Body designs that use independent sub-frames will not be acceptable.

BODY STRUCTURE MEMBERS

The space frame body shall have triangular shaped structural members in certain areas of the body. This shape is required to prevent loss of useable compartment space. Other body structure members shall be square or rectangular. Each structural member will have a nominal outside dimension of 2.50 inches (63.50 mm) in at least one direction. The body shall be designed for maximum strength to weight ratio, therefore the gauge of sheet metal and structural members varies from .125 inches (3.18 mm) to .250 inches (6.35 mm) throughout, dependent on the design requirement.

BODY MATERIAL TYPE

All body structural members shall be Aluminum 6061-T6 alloy material. All .125 inch (3.18 mm) sheet material shall be Aluminum Alloy 5052-H32, and .250 inch (6.35 mm) sheet materials shall be Aluminum Alloy 3003.

These alloys are required because it provides optimum all-around performance for strength, manufacturing properties, and corrosion resistance.

ECK® ANTI-CORROSION PROCESS

Absolutely no dissimilar metals shall be used in the body and its supporting substructure without being separated by Eck®, which prevents corrosion by providing a barrier between dissimilar metals, sealing out moisture and absorbing energy created by a dissimilar metal reaction.

FRONT BODY COMPARTMENT WALLS

The front compartment walls of both forward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments.

REAR BODY COMPARTMENT WALLS

The rear compartment walls of both rearward most compartments shall be sheet finished. No overlay material shall be visible from the interior of the compartments. Access panels from the rear walls shall be strategically placed to ensure access to the rear taillight clusters for any servicing that may be completed.

COMPARTMENT TOP

The top of the compartments shall be an integral portion of the body. No overlay material shall be visible from the interior of the compartments.

COMPARTMENT FLOORS

The body compartments shall be enclosed with aluminum sheet metal as specified above. The compartment floors shall have a 1.00 inch (25.40 mm) lip downward at the door opening side of the compartment. This lip shall integrate with a structural member on the bottom edge and form a “sweep-out” compartment. This design shall also allow for a structural flush fitting door frame and a complete door/weather seal.

COMPARTMENT LOAD CAPACITY

Each compartment shall have a minimum of one additional structural compartment floor support centered on the underside of the compartment floor. This additional member shall be integral with the rest of the body structure. Each compartment must be designed, and 3rd party analyzed to carry a working load of:

Full depth side compartment: 1,000 lbs (453.59 kg) per compartment
Half depth side compartment: 750 lbs (340.19 kg) per compartment

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Rear center compartment: 1,500 lbs (680.39 kg)

NOTE: These values are for design purposes only for individual compartment construction and are not meant to be used as an actual overall weight rating for equipment load per compartment for the specified apparatus. The apparatus shall be engineered such that the completed unit, when loaded to its estimated in-service weight, shall comply with the gross axle weight ratings {GAWR}, the overall gross vehicle weight rating {GVWR}, and the chassis manufacturer's load balance guidelines per NFPA.

EXTERIOR HOSE BED WALLS

The exterior hose bed walls shall be an integral portion of the body. The wall shall give a smooth exterior look and finish with no vertical supports tubing visible from the exterior of the truck.

FASTENERS

All bolts and nuts used in the finish construction of the apparatus shall be coated stainless steel which helps prevent dissimilar metal electrolytic reaction and corrosion. Any bolt extending into a compartment or into the hose bed area shall have an acorn nut attached or be protected in such manner where sharp edges are avoided.

FINITE ELEMENT ANALYSIS

The proposed body design must have completed a review and analysis by a legitimate 3rd party engineering firm. At a minimum, the 3rd party must have conducted a computer model finite element analysis of the proposed design. The analysis is to include real world working load scenarios. Analysis to cover both static and dynamic situations must be completed. The purpose of the finite element analysis is to ensure proper design of the apparatus body, and that it is capable of carrying the typical fire apparatus loads and those specified by NFPA for equipment. The analysis process must conclude that the body structure is properly designed and manufactured to provide longevity under normal conditions. The 3rd party must also validate the manufacturing processes are consistent with the design and analysis performed. Proof of having completed this testing must be submitted with the bid.

PAINT SPECIFICATIONS

All bright metal fittings, if unavailable in stainless steel, shall be heavily chrome plated.

Critical body and sub-frame area which cannot be primed after assembly shall be pre-painted.

All welded metal surfaces shall be ground to a smooth surface prior to a degreasing and high pressure, high temperature phosphatizing process. The entire surface shall be sprayed with a non-chromate sealing compound

to prevent formulation of stains or flash rust on previously phosphatized parts.

The paint applied to the apparatus shall be Akzo Nobel, Sikkens brand, LVBT650 basecoat, applied throughout a multi-step process including at least two coats of each color and clear coat finish.

The coating shall be an infra-red, baked air dried. The coatings shall provide full gloss finished suitable for application by high-pressure airless or conventional low pressure air atomizing spray.

The coatings shall not contain lead, cadmium or arsenic. The polyisocyanate component shall consist of only aliphatic isocyanates, with no portion being aromatic isocyanates in character. The solvents used in all components and products shall not contain ethylene glycol mono-ethyl ethers or their acetates (commercially recognized as cello solves), nor shall they contain any chlorinated hydrocarbons. The products shall have no adverse effects on the health or nor present any unusual hazard to personnel when used according to manufacturer's recommendations for handling and proper protective safety equipment, and for its intended use.

The coating system, as supplied and recommended for application, shall meet all applicable federal, state and local laws and regulations now in force or at any time during the courses of the bid.

The manufacturer shall supply (upon request) for each product and component of the system, a properly complete OSHA "Safety Data Sheet".

The following documents of the issue in effect on the date of the invitation to quote form a part of this document to the extent specified herein:

Federal Standards: Number 141A and 141B paint, varnish, lacquer and related material: methods of inspection, sampling, and testing.

Military Standard: MIL-C 83486B Coating, Urethane, Aliphatic Isocyanates, for Aerospace applications.

Industry Methods and Standards: ASTM Method of Analysis (American Society for testing and Materials). BMS 10-72A (Boeing Material Specifications).

The entire exterior body structure (excluding roll-up doors) shall receive the primer coats and the finish coats. The apparatus body will be painted in a down draft type paint booth to reduce dust, dirt or impurities in the finish paint. The painted surfaces shall have a finish with no runs, sags, craters, pinholes or other defects. The coating will meet the following test performance properties as a minimum standard.

BODY PAINT COLOR
The apparatus body shall be painted {" MUST SPECIFY "}.

SUPERLINER COMPARTMENT FINISH

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The compartment interiors shall be coated with Superliner.

COMPARTMENT FINISH COLOR

The Superliner Color shall be Medium Gray.

UNDERCOATING

The underside of the apparatus body shall be cleaned and prepared for the application of a sprayed on automotive type undercoating for added corrosion resistance.

The undercoating is to be of a quick dry rubberized, solvent based coating that is (black) in color. Resists rust and abrasion as it seals out dust and moisture.

The application does not include any additional underbody, chassis or body cavity components.

STRUCTURAL BODY WARRANTY

A structural Aluminum body warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship under normal use and service for a period of ten (10) years.

PAINT WARRANTY

A Prorated Paint Warranty shall be provided by the apparatus manufacturer for products of its manufacture to be free from defects in material and workmanship, under normal use and service, for a period of ten (10) years.

PAINTED FRONT OVERLAYS

The entire front face of the apparatus body shall have painted overlays installed to color match the body.

RAW ALUMINUM REAR OVERLAYS

The entire rear face of the apparatus body shall have raw aluminum overlays installed for the installation of chevron striping.

All overlay materials shall be coated with 3M adhesive sealant on the back portion to provide an insulating barrier between dissimilar metals.

FRONT CORNER TRIM 18 GAUGE MIRRORED STAINLESS STEEL

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The front of the apparatus body, vertical wall overlays shall be installed with an 18 gauge mirrored stainless steel 1.00 inch by 1.00 inch corner trim piece for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

REAR CORNER TRIM 18 GAUGE MIRRORED STAINLESS STEEL

The rear face of the apparatus body, vertical wall overlays shall be installed with an 18 gauge mirrored stainless steel 1.00 inch by 1.00 inch corner trim piece, for edge protection. The vertical edge trim piece shall extend from the top to bottom and shall be fastened at a minimum of three locations, top, middle, and bottom.

The vertical edge trim piece that is protecting the chevron striping surface or that is utilized for the purpose of striping, shall be secured utilizing fasteners only.

CATWALKS

The catwalks shall be constructed with materials of a non-slip .125 inch embossed aluminum diamond plate.

VIBRA-TORQ™ BODY MOUNTING SYSTEM

The entire body module assembly shall be mounted so that it “floats” above the chassis frame rails exclusively with Vibra-Torq™ torsion isolator assemblies to reduce the vibration and stress providing an extremely durable body mounting system.

The body substructure shall be mounted above the frame to allow independent flexing to occur between the body and the chassis. Each assembly shall be mounted to the chassis frame rails with steel, gusseted mounting brackets. Each bracket shall be powder coated for corrosion resistance. Each body mount bracket shall be mounted to the side chassis frame flange with two 5/8”-UNC Grade 5 HHCS.

Each assembly shall have a two-part rubber vibration isolator. The isolator shall be of a specific durometer to carry the necessary loads of the apparatus body, equipment, tank, water, and hose. The quantity of mounts utilized shall correspond directly to the anticipated weight being supported. Certain assemblies shall also incorporate a torsion spring. Helical coil springs shall be incorporated into specific mounts in tandem with the rubber isolators to minimize the stress absorbed by the body caused from chassis frame rail flexing.

There shall be no welding to the chassis frame rail sides, web or flanges, or drilling of holes in the top or bottom frame flanges between axles. All body to chassis connections shall be bolted so that in the event of an accident, the body shall be easily removable from the truck chassis for repair or replacement.

Because of the constant vibration and twisting action that occurs in chassis frame rails and suspension, the torsion mounting system is required to minimize the possibility of premature body structural failures. The

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Vibra-Torq™ body mounting system shall have a lifetime warranty.

BODY STRUCTURE WIDTH

The width of the apparatus body from the outside of the left compartments to the outside of the right compartments shall be 99.00 inch (2.51 m) excluding any attached peripherals such as rub rails, fenderettes, grab handles, etc.

COMPARTMENT DRAINS

Each compartment shall have two (2) "duck bill" drains provided. The drains shall be located one (1) in each rear corner of the compartment.

COMPARTMENT VENTILATION

To allow for proper air circulation & flow, each compartment shall have a venting route. The venting locations shall be determined by best-fit for each body configuration. Chrome louvered plate vents shall be installed appropriately on the compartment interior walls.

COMPARTMENTATION

The following compartments shall be supplied on the apparatus:

Compartment "L1"

There shall be one (1) full height compartment ahead of the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 69.00 inches wide by 74.00 inches (1879.60 mm) high with a lower depth of 25.50 inches (647.70 mm) and an upper depth of 12.50 inches (317.50 mm).

The framed opening shall measure 66.50 inches wide by 70.00 inches (1778.00 mm) high.

Compartment "L2"

There shall be one (1) compartment located directly over the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 62.00 inches (1574.80 mm) wide by 44.50 inches (1130.30 mm) high with a depth of 12.50 inches (317.50 mm). The lower 4.50 inches of the compartment shall be a depth of 25.50 inches.

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The framed opening shall measure approximately 62.00 inches (1574.80 mm) wide by 40.50 inches (1028.70 mm) high.

The compartment will have approximately 22.06 cubic feet (0.62 cu m) of space.

Compartment "L3"

There shall be one (1) full height compartment located behind the rear wheels on the left side of the apparatus.

The approximate interior dimensions of this compartment shall be 58.00 inches (1473.20 mm) wide by 74.00 inches (1879.60 mm) high with an upper depth of 12.50 inches (317.50 mm) and the lower portion being transverse into the rear compartment, unless partitions are installed.

The framed opening shall measure approximately 55.50 inches (1409.70 mm) wide by 70.00 inches (1778.0 mm) high.

The compartment will have approximately 45.45 cubic feet (1.29 cu m) of space.

Compartment "R1"

There shall be one (1) full height compartment ahead of the rear wheels on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 69.00 inches wide by 74.00 inches (1879.60 mm) high with a lower depth of 25.50 inches (647.70 mm) and an upper depth of 12.50 inches (317.50 mm).

The framed opening shall measure 66.50 inches wide by 70.00 inches (1778.00 mm) high.

Compartment "R2"

There shall be one (1) compartment located directly over the rear wheels on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 62.00 inches (1574.80 mm) wide by 44.50 inches (1130.30 mm) high with a depth of 12.50 inches (317.50 mm). The lower 4.50 inches of the compartment shall be a depth of 25.50 inches.

The framed opening shall measure approximately 62.00 inches (1574.80 mm) wide by 40.50 inches (1028.70 mm) high.

The compartment will have approximately 22.06 cubic feet (0.62 cu m) of space.

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Compartment "R3"

There shall be one (1) full height compartment located behind the rear wheels on the right side of the apparatus.

The approximate interior dimensions of this compartment shall be 58.00 inches (1473.20 mm) wide by 74.00 inches (1879.60 mm) high with an upper depth of 12.50 inches (317.50 mm) and the lower portion being transverse into the rear compartment, unless partitions are installed.

The framed opening shall measure approximately 55.50 inches (1409.70 mm) wide by 70.00 inches (1778.0 mm) high.

The compartment will have approximately 45.45 cubic feet (1.29 cu m) of space.

Smart Roll Out Trays in Wheel Panel to be removed, L2 & R2 taller compartments.

ROLL-UP DOOR CONSTRUCTION

All horizontal and vertical side compartment doors shall be roll-up style doors.

R·O·M ROLL-UP DOOR

A R•O•M Corporation Series IV roll-up shutter door shall be installed. Each shutter slat, track, bottom rail, and drip rail shall be constructed from anodized 6063 T6 aluminum.

Shutter slats shall feature a double wall extrusion 0.315 inches thick with a concave interior surface to minimize loose equipment jamming the shutter door closed. Shutter slats shall feature an interlocking end shoe to prevent side to side binding of the shutter door during operation. Slats must have interlocking joints with an inverted locking flange. Slat inner seal shall be a one piece PVC extrusion; seal design shall be such to prevent metal to metal contact while minimizing dirt and water from entering the compartment.

Shutter door track shall be one piece design with integral overlapping flange to provide a clean finished look without the need of caulk. Door track shall feature an extruded Santoprene rubber double lip low profile side seal with a silicone co-extruded back to reduce friction during shutter operation.

Shutter bottom rail shall be a one piece double wall extrusion with integrated finger pull. Finger pull shall be curved upward with a linear striated surface to improve operator grip while operating the shutter door. Bottom rail shall have a smooth contoured interior surface to prevent loose equipment from jamming the shutter door. Bottom rail seal shall be made from Santoprene; it will be a double “V” seal to prevent water and debris from entering compartment. Bottom rail lift bar shall be a one piece “D” shaped aluminum extrusion with linear striations to improve operator grip during operation. Lift bar shall have a wall thickness of 0.125 inches. Lift bar

shall be supported by no less than two pivot blocks; pivot blocks shall be constructed from Type 66 Glass filled reinforced nylon for superior strength. Bottom rail end blocks shall have incorporated drain holes which will allow any moisture that collects inside the extrusion to drain out.

Shutter door shall have an enclosed counterbalance system. Counterbalance system shall be 4.00 inches in diameter and held in place by 2 heavy duty 18 gauge zinc plated plates. Counterbalance system shall have 2 over-molded rubber guide wheels to provide a smooth transition from vertical track to counterbalance system.

SIDE COMPARTMENT DOORS WET PAINTED

The side compartment roll up doors shall be wet finish painted to color match the apparatus body. The door track and trim shall be satin aluminum finish.

ROLL-UP DOOR PROTECTORS

There shall be a protective cover installed under each body side compartment door roll to protect the door in the rolled up position.

ROLL-UP DOOR PROTECTOR FINISH

The roll-up door protector shall be left Natural finish.

DOOR ASSIST STRAPS

There shall be nylon straps installed on both the left and right body side 'high side' compartment doors to assist in closing the door. The strap shall be attached to each door and permanently mounted to the rearward wall with footman loops using Nutserts, halfway between the top and bottom of the compartment.

DOOR OPEN INDICATOR

Each roll up door shall have an integral door open indicator magnet in the lift bar.

If the door is not properly closed and the parking brake is released, it shall activate the “hazard light” in the cab to alert the crew.

REAR CENTER COMPARTMENT

There shall be one (1) compartment, "B1", located at the rear of the apparatus, below the hose bed access area.

The approximate interior dimensions of this compartment shall be 43.00 inches (1092.20 mm) wide and 47.00 inches (1193.80 mm) high or as high as possible determined by the hose bed height and rear configuration. The

depth shall be determined by the length of the rear side compartments specified and maximized for the suspension specified for the chassis.

The framed opening shall be approximately 38.00 inches (965.20 mm) wide and 41.00 inches (1041.10 mm) high.

REAR COMPARTMENT DOOR

A non-locking R•O•M Corporation Series IV roll-up shutter door shall be installed. Each shutter slat, track, bottom rail, and drip rail shall be constructed from anodized 6063 T6 aluminum.

Shutter slats shall feature a double wall extrusion 0.315 inches thick with a concave interior surface to minimize loose equipment jamming the shutter door closed. Shutter slats shall feature an interlocking end shoe to prevent side to side binding of the shutter door during operation. Slats must have interlocking joints with an inverted locking flange. Slat inner seal shall be a one piece PVC extrusion; seal design shall be such to prevent metal to metal contact while minimizing dirt and water from entering the compartment.

Shutter door track shall be one piece design with integral overlapping flange to provide a clean finished look without the need of caulk. Door track shall feature an extruded Santoprene rubber double lip low profile side seal with a silicone co-extruded back to reduce friction during shutter operation.

Shutter bottom rail shall be a one piece double wall extrusion with integrated finger pull. Finger pull shall be curved upward with a linear striated surface to improve operator grip while operating the shutter door. Bottom rail shall have a smooth contoured interior surface to prevent loose equipment from jamming the shutter door. Bottom rail seal shall be made from Santoprene; it will be a double “V” seal to prevent water and debris from entering compartment. Bottom rail lift bar shall be a one piece “D” shaped aluminum extrusion with linear striations to improve operator grip during operation. Lift bar shall have a wall thickness of 0.125 inches. Lift bar shall be supported by no less than two pivot blocks; pivot blocks shall be constructed from Type 66 Glass filled reinforced nylon for superior strength. Bottom rail end blocks shall have incorporated drain holes which will allow any moisture that collects inside the extrusion to drain out.

Shutter door shall have an enclosed counterbalance system. Counterbalance system shall be 4.00 inches in diameter and held in place by 2 heavy duty 18 gauge zinc plated plates. Counterbalance system shall have 2 over-molded rubber guide wheels to provide a smooth transition from vertical track to counterbalance system.

REAR COMPARTMENT DOOR FINISH

The rear center compartment door shall be satin aluminum finish.

DOOR OPEN INDICATOR

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Each roll up door shall have an integral door open indicator magnet in the lift bar.

If the door is not properly closed and the parking brake is released, it shall activate the “hazard light” in the cab to alert the crew.

SILL PLATES

Brushed stainless steel sill plates shall be installed at the bottom of each body compartment door opening.

COMPARTMENT LIGHTING

Two (2) LED Tube lights model #RX-15T16-5050 shall be installed in each body compartment. The tube lights shall be centered vertically along each side of the door framing and at maximum length available to fit the opening.

The lights in each compartment shall be on a separate circuit, turning on only those lights that have open compartment doors.

COMPARTMENT LIGHTING ACTIVATION

Each compartment light shall be activated with the ignition, park brake and the respective compartment door open switch

REAR TAILBOARD

The rear of the apparatus body shall be vertical in design - otherwise known as a 'flat-back'.

The rear tailboard shall be fabricated of the same tubular materials as used in the apparatus body.

The tailboard shall be an independent assembly welded to the rear body structural framing to provide body protection and a solid rear stepping platform.

The rear step shall be designed to incorporate "crush zone" technology. This idea incorporates lighter materials in the tailboard than the body structure so the step will "crush" in a collision before the body structure.

On the rear body surface, a sign shall be attached that states: "DO NOT RIDE ON REAR STEP, DEATH OR SERIOUS INJURY MAY RESULT."

The rear tailboard and body shall be constructed such that the angle of departure shall be no less than 8 degrees at the rear of the apparatus when fully loaded (NFPA) 1901, Standard for Automotive Fire Apparatus.

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TAILBOARD LENGTH

The inset rear tailboard shall be approximately 9.00 inches (228.60 mm) deep and shall incorporate an extruded stair tread "Diamondback" material stepping surface bolted in place.

The extruded stepping surface shall be completely enclosed by the supporting structural framework to minimize damage. The ventilated "Diamondback" material shall be capable of being easily replaced if necessary, using only hand tools.

The framework shall be covered with an adhesive tape providing an aggressive traction surface. Use of any aluminum diamond plate material on these areas shall not be acceptable.

WHEEL WELLS

Wheel wells shall have semicircular black polymer composite inner liners that are bolted to the wheel well panel and supported inboard by brackets that are connected to the body framework. Each wheel well shall be a continuous piece with no breaks or ledges where road grime or debris may accumulate. This liner shall be removable for access to suspension assembly for repairs. There shall be no exception to the bolted wheel well inner liner requirement.

WHEEL WELL MODULES

The body wheel well area shall be fabricated of same material type as the body and finish painted. There shall be “smart storage” compartmentation features incorporated on each side of the apparatus body wheel well modules to utilize and maximize storage space availability.

WHEEL WELL ROLL-OUT DRAWER

There shall be one (1) roll-out drawer installed above the rear wheel on the right side of the body in the R-2 compartment. The drawer shall be as wide and as deep as compartment allows and shall have a 220 pound capacity.

The slide assemblies shall incorporate cadmium plated ball bearing roller slides and a lock-in, lock-out (FDR) front drawer release system.

LEFT FRONT WHEEL WELL

There shall be provisions in the wheel well on the left side in front of the axle.

SLIDE-OUT FLOOR DRY MODULE

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A slide-out floor dry storage module with locking slides shall be provided and installed in the apparatus wheel well smart storage area as specified.

The floor dry storage module shall be manufactured as large as possible to maximize the available storage space. The module shall be capable of storing approximately 35-40 pounds of all-purpose floor dry absorbent compound material pending type and brand used by fire department.

The floor dry compartment module shall have a hinged lid with mechanical latching device that can be easily accessed for refilling. The module shall include a grab handle for ease of deployment. The module shall be located directly behind the smart storage compartment door. A manual drain shall be located at the bottom of the compartment module for ease of dispensing the material.

The storage module shall be labeled "Floor Dry".
The slide out floor dry module shall have RED reflective striping installed making the perimeter more readily visible when deployed.

LEFT REAR WHEEL WELL

There shall be provisions in the wheel well on the left side behind the axle.

FUEL FILL & CYLINDER COMPARTMENT

The compartment shall accommodate the fuel fill and hold one (1) 6.75 inch (171.45 mm) Diameter x 24.00 inch (609.60 mm) long cylinder storage with 1.00 inch (25.40 mm) nylon safety loop installed.

SMART STORAGE FUEL FILL ASSEMBLY

There shall be a fuel fill assembly located on the apparatus body accessing the chassis supplied fuel tank. The assembly shall be located in the rear Smart Storage module specified behind the rear axle.

There shall be a drain in the fuel fill assembly to allow overflow to drain on the back side of the apparatus body. The fuel fill cap shall be manufactured of plastic materials, green in color and equipped with a tether.

The fuel fill cap shall be labeled "DIESEL FUEL". The fuel fill neck shall have a .375 inch inside diameter vent line installed from the top of the fuel tank to the fill tube.

RIGHT FRONT WHEEL WELL

There shall be provisions in the wheel well on the front side in front of the axle.

SCBA COMPARTMENT

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The compartment shall hold three (3) 6.75 inch (171.45 mm) Diameter x 24.00 inch (609.60 mm) long SCBA bottles with 1.00 inch (25.40 mm) nylon safety loops installed.

RIGHT REAR WHEEL WELL

There shall be provisions in the wheel well on the right side behind the axle.

FIRE EXTINGUISHER STORAGE COMPARTMENT

The compartment shall hold one (1) 2.5 gallon water extinguisher and one (1) 20 lb. ABC fire extinguisher.

SMART STORAGE DOORS

The smart storage compartment doors shall be smooth and painted stainless steel to match body job color. Where a module storage compartment is specified, a hinged door shall be provided. Each compartment door shall be secured with a push button latch.

DOOR OPEN INDICATOR

There shall be a switch installed for each smart storage compartment door.

If the door is not properly closed and the parking brake is released, it shall activate the “hazard light” in the cab to alert the crew.

FENDERETTES

Two (2) Painted Black aluminum fenderettes to match cab fenderettes shall be provided and installed on body rear wheel well openings, one (1) each side. Rubber welting shall be provided between the body and the crown to seal the seam and restrict moisture from entering. A dielectric barrier shall be provided between the fender crown fasteners (screws) and the fender sheet metal to resist deterioration.

HOSE STORAGE

A hose bed shall be provided and installed with the minimum capacity as required by (NFPA) 1901, Standard for Automotive Fire Apparatus.

The hose bed shall have a slotted .25 inch (6.35 mm) aluminum flooring installed to allow drainage through the tank cavity to the ground below.

The aluminum flooring shall be manufactured in discrete sections to allow for ease of removal and stability. The

area shall be free of sharp edges to protect the hose when loading and unloading.

SUPERLINER HOSE BED FINISH

The interior walls of the hose bed shall be coated with black Superliner finish.

Superliner durable finish requires no special maintenance and can be washed just like paint.

HOSE BED AREA TRIMMED W/ MIRRORED SST

The vertical corners along the back of the hose bed shall be trimmed with mirrored stainless steel. The trim shall extend from the hose floor level up to the top edge of the body side.

HOSE BED WALL CAP

The top rail on the hose bed side walls shall have a trim cap fabricated of mirrored stainless steel. The cap shall run the entire length of the hose bed side wall and shall provide a smooth surface with a highly finished appearance. It shall extend down at least 1.00 inch on each side of the hose bed side wall.

HOSE BED WALL HEIGHT

The walls of the hose bed shall be 95.00 inches (2.41 m) tall, measured from the bottom edge of the compartments to the top flange.

SYNTEX VINYL COATED NYLON HOSE BED COVER

There shall be a hose bed cover provided and installed with the apparatus to cover the top of the hose bed area.

The cover shall be held in place by extruded aluminum channel on the front and an elastic shock cord sewn into the tarp with brass grommets where the shock cord passes through the hose bed cover on the sides. Hooks shall be provided on the sides to provide a means of attaching the cover to the apparatus. The hooks shall be made of cast aluminum.

HOSE BED COVER COLOR

The hose bed cover shall be red in color.

SYNTEX VINYL REAR HOSE BED RESTRAINT

There shall be a vinyl flap that extends down over the rear of the hose bed provided and installed with the apparatus. The cover shall be fastened by an elastic shock cord sewn into the tarp with brass grommets where

the shock cord passes through the hose bed cover. Hooks shall be provided on the lower corners to provide a means of attaching the cover to the apparatus. The hooks shall be made of cast aluminum.

REAR FLAP COLOR

The rear flap shall be red.

LED HOSE BED LIGHTING

There shall be four (4) 48.00 inch (122cm) LED Tube lights model #RX-15T16-5050-122CM installed with protective angles. Two (2) each side at the top of the hose bed walls, centered from front to back.

HOSE BED LIGHT ACTIVATION

The hose bed lights shall be activated when the park brake is set.

NO HOSE BED DUNNAGE AREA

There shall be a fabricated sheet metal divider wall provided around the fill tower(s) for maximizing the hose bed storage area.

This partition and the rear face of the forward body wall shall serve as mounting surfaces for the hose bed dividers, resulting in the ability to move any hose bed divider across the entire width of the hose bed.

No dunnage area shall be provided in the hose bed.

HOSE BED DIVIDER WITH HAND CUTOUT

There shall be a full height adjustable hose bed divider provided and installed in the hose bed area of the apparatus body.

The divider shall be fabricated of .25 inch (6.35 mm) thick aluminum plate with a double sided reinforcement and attached to the adjustable slide rails. The rear of the divider shall have a radius to provide a smooth corner and a hand cut out to aid in access to the hose bed area. Hose payout shall be unobstructed by the divider.

Hose Bed Dividers to be coated with Black Superliner to match interior hosebed walls.

There shall be a total of three (3) provided and installed in the hose bed.

HOSE LOAD

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The hose bed shall accommodate the following hose loads:

BAY 1:

-300 feet of 2.50 inch hose

BAY 2:

-600 feet of 3.00 inch hose

BAY 3:

-1000 feet of 5.00 inch hose

TANK CAPACITY

The tank shall be 1600 gallons in capacity.

PRO POLY POLYPRENE TANK

The water tank shall be designed to utilize cavities that have commonly been wasted space. The water tank shall extend up and over the rear center compartment to just behind the rear body wall. The water tank shall fill the void between the main hose bed floor and the top of the rear center compartment. This tank design shall provide for a lower overall tank height, resulting in a lower overall main hose bed height. In addition, this design shall create a lower center of gravity of the vehicle, for improved vehicle handling.

TANK CONSTRUCTION

The booster tank shall be constructed of .50 inch (12.70 mm) thick Polyprene sheet stock which is a non-corrosive stress relieved thermoplastic. It shall be designed to be completely independent of the body and compartments. All joints and seams are extrusion welded and/or contain the "Bent Edge" and tested for maximum strength and integrity. The top of the booster tank is fitted with lifting eyes designed with a 3 to 1 safety factor to facilitate tank removal.

COVER

The tank cover shall be constructed of .50 inch (12.70 mm) thick Polyprene and shall be recessed. A minimum of two lifting dowels shall be drilled and tapped .50 inch (12.70 mm) x 2.00 inch (50.00 mm) to accommodate the lifting eyes.

BAFFLES

The swash partitions shall be manufactured from .50 inch (12.70 mm) Polyprene. All partitions shall be equipped with vent and air holes to permit movement of air and water between compartments to provide maximum water flow. All swash partitions interlock and are welded to one another as well as to the walls of the tank.

MOUNTING

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The tank shall have a reinforced .75 inch (19.10 mm) floor for added strength and durability. The tank shall be isolated from the body substructure cross members with .50 inch (12.70 mm) x 2.50 inch (65.00 mm) rubber strips that are 60 durometer in hardness. The tank shall sit nested inside the center body substructure and shall be completely removable without disturbing the body side panels. Tank stops on all four sides will keep the tank from shifting front to back or side to side.

TANK WARRANTY

A lifetime tank warranty will be provided by the tank manufacturer, Pro Poly.

Please see the official warranty document in the appendix (attached) for specific details.

FILL TOWER

The fill tower base shall measure approximately 25.00 inches (635.00 mm) long x 14.00 inches (355.00 mm) wide and incorporate an "anti-surge" baffle inside the tower and the opening shall be approximately 14.00 inches (355.00 mm) x 14.00 inch (355.00 mm).

The tower will have a .25 inch (6.40 mm) thick removable Polyprene screen and a Polyprene hinged type cover that will open if the tank is filled at an excess rate. There shall be a removable .25 inch (6.40 mm) thick Polyprene screen to prevent debris from falling into the tank.

The fill tower shall have a 6.00 inch (150.00 mm) overflow that will discharge underneath the tank, behind the rear axle(s), avoiding the chassis fuel tank and suspension components where applicable. The overflow shall terminate above the tank water level when filled to the rated capacity.

FILL TOWER LOCATION

The fill tower shall be located to the left side at the front of the hose bed.

SUMP

The sump will be constructed in an 8.00 inch (203.20 mm) x 16.00 inch (406.40 mm) x 3.00 inch (77.00 mm) deep area.

The construction material shall utilize .50 inch (12.70 mm) Polyprene and be located in line with the tank suction valve. There shall be a 4.00 inch (100.00 mm) schedule 40 Polyprene tube installed that will run from the suction outlet to the sump location. The tank will have an anti-swirl plate located approximately 2.00 inch (50.00 mm) above the sump.

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SUMP PLUG

The sump shall have a 3.00 inch (77.00 mm) plug for use in draining and cleaning out the tank.

OUTLETS

In addition to the tank suction valve outlet located in the sump, there shall be an outlet provided for the tank fill valve. If there are any additional options selected (such as an extra tank suction or direct tank inlets), there shall be additional outlets provided to accommodate these items.

REAR DUMP VALVE

A 10.00 inch stainless steel square Newton Kwik-Dump valve shall be installed on the water tank. The valve shall be equipped with an electric actuator, controlled by a weather resistant toggle switch.

The control shall be located near the valve on the apparatus body; positioned away from the immediate dumping area, however close enough to monitor the dumping procedure. The valve will not operate unless the Emergency Master switch is in the on position.

VALVE CONTROL

The rear dump valve shall have controls mounted on the left rear face of the apparatus and on the rocker switch panel in the cab to facilitate remote operation. An indicator light shall be installed in the cab to indicate if the valve is not in the fully closed position.

DUMP CHUTE CONTROLS/CAST PRODUCTS HOUSING

All dump valve and extension chute control switches shall be installed in a Cast Products enclosure model (#EB0006) with a weather resistant-hinged door. A LED TecNiq accent light will be installed inside the enclosure to illuminate the switching area. The light shall be activated whenever the ignition is in the “on” position and the park brake is “set”.

The following shall be provided:

Light- TecNiq/Dragon (white) model #D04-W00-1
Light Case- TecNiq/Dragon (white) model #D04-0SH0-1

DUMP VALVE LOCATION

The valve shall be located inside the rear compartment. There shall be a catch tray installed directly under the chute to collect excess water from the valve and chute. The bottom of the catch tray shall be incorporated with a

1” drain hose that will terminate through the rear wall of the compartment.

STAINLESS STEEL ELECTRIC TELESCOPING CHUTE EXTENSION

An 18.00 inch stainless steel electric telescoping dump chute extension shall be installed.

If the chute is not properly stowed and the parking brake is released, it shall activate the hazard light in the cab to alert the crew.

The chute shall be actuated by the same momentary toggle switch that actuates the valve. The chute shall be fully extended prior to the valve opening and the valve shall be fully closed prior to the chute retracting.

LADDER COMPARTMENT

The ground ladders shall be stored within a compartment installed beside the booster tank.

All items shall be stored in their own independent section to allow one item to be removed without disturbing another. There shall be polypropylene slide angles installed in each section where applicable, to support the ladders and allow ease of removal. There shall be a stop in the front of each section to prevent the items from sliding forward.

LADDER COMPARTMENT MATERIAL

The ground ladder compartment shall be fabricated of .125-inch smooth aluminum.

LADDER COMPARTMENT LOCATION

The ground ladder compartment shall be mounted vertically on the right side of the water tank.

LADDER COMPARTMENT END CAP

The compartment shall be enclosed through to the pumphouse and incorporate a removable weather resistant end cap, providing access for serviceability, drainage, and cleaning.

LADDER COMPARTMENT DOOR HINGE LOCATION

The door hinge shall be mounted vertically across the inboard edge of the compartment door opening.

LADDER COMPARTMENT DOOR

The door material shall match the rear overlay material. The door shall have two (2) push button type latches installed with a chrome handle centered between the push button latches.

If the door is not properly closed and the parking brake is released, it shall activate the "hazard light" in the cab to alert the crew.

LADDER COMPARTMENT DOOR REFLECTIVE CHEVRON

The ladder compartment door shall be left unfinished and include retro-reflective chevron material matching the rear of the apparatus.

LADDER COMPLEMENT

The following ladders shall be supplied with the apparatus:
One (1) Duo-Safety 24 foot (7.0 m) two (2) section aluminum extension ladder(s), model 900A.
One (1) Duo-Safety 14 foot (4.0 m) aluminum roof ladder(s) with folding hooks, model 775A.
One (1) Duo-Safety 10 foot (3.0 m) aluminum attic ladder(s), model 585A.

PIKE POLE STORAGE

There shall be three (3) tubes provided for storage of the pike poles installed with the ground ladder complement.

T-handle detent pin(s), secured by a chain, shall be used to secure the pike pole(s) during transit.

The following pike poles shall be supplied with the apparatus:
One (1) Duo-Safety 8 foot (2.5 m) pike pole(s) with fiberglass handle
One (1) Duo-Safety 10 foot (3.0 m) pike pole(s) with fiberglass handle
One (1) Duo-Safety 8 foot (2.5 m) pike pole(s) with fiberglass handle

STORAGE ABOVE LADDER COMPARTMENT

There shall be an additional storage compartment provided and installed on the rear of the apparatus above the ladder compartment. The compartment shall be fabricated of same materials as the ground ladder compartment.

The interior floor of the compartment shall be lined with black ABS plastic for ease of stowing and un-stowing equipment.

The storage box shall be as wide as the ladder compartment and uses the remaining space available from the top of the ladder compartment to the top of the body.

There may be an open top dunnage storage provided towards the area at the front of the truck utilizing any unoccupied space design permitting, ahead of the pack storage.

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The compartment shall have a hinged door at the rear to access the equipment. The door shall be fabricated of same materials as the ladder compartment door and shall be secured with two (2) push button latches and will include a chrome 7.00 inch handle centered between the latches.

If the door is not properly closed and the parking brake is released, it shall activate the “hazard light” in the cab to alert the crew.

The compartment shall have provisions for the following equipment:

SUCTION HOSE

The following suction hose shall be provided to be stored in the compartment layout as specified above.
There shall be Two (2) 10 foot length(s) of 6.00 inch clear PVC suction hose with lightweight couplings provided with the above specified storage.

REAR ACCESSIBLE TANK AREA STORAGE

The folding tank will be stored within a vertical compartment located beside the booster tank.

The interior floor of the compartment shall be lined with Black ABS plastic for ease of stowing and un-stowing of the tank.

There shall be a vertically hinged door, matching the rear overlay material, on the rear of the compartment with two (2) push button type latches and a chrome handle centered between the push button latches.

If the door is not properly closed and the parking brake is released, it shall activate the “hazard light” in the cab to alert the crew.

STORAGE COMPARTMENT DOOR HINGE LOCATION

The door hinge shall be mounted vertically on the outboard edge of the compartment door opening.

EQUIPMENT DOOR STRIPING

Retro-Reflective striping in a chevron pattern matching the rear layout shall be provided on the equipment access door.

FOLDING TANK COMPARTMENT MATERIAL

The folding tank compartment shall be fabricated of .125 inch smooth aluminum.

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FOLDING TANK COMPARTMENT LOCATION

The folding tank compartment shall be located on the left side of the water tank.

FOLDING TANK STORAGE PROVISION

The above specified folding tank storage shall be manufactured large enough to accommodate a 2100-gallon folding tank, as specified below.

FOLDING TANK

There shall be a 2100 gallon portable tank provided with the apparatus. It shall be manufactured by Husky. The tank shall have an aluminum frame and a 22 oz vinyl liner.
The liner of the tank shall be red in color.

COMPARTMENT UNISTRUT

Vertically mounted Unistrut shall be installed in all apparatus body compartments, in the upper and lower sections, to accommodate the installation of shelves, trays, and or other miscellaneous equipment.

OVER-WHEEL COMPARTMENT PARTITIONS

Compartment partitions fabricated of the same material as the body shall be permanently installed in the left over-wheel compartment, right over-wheel compartment, or both where applicable by design.

The partitions shall be permanently installed in place and flush to the forward and rearward frame openings.

The partitions shall aid in keeping loose equipment from falling into the fore and aft compartments.

COMPARTMENT FLOOR MATTING

Turtle Tile floor tiles shall be installed on the floor of all exterior compartments. The tile shall be custom fitted to the interior compartment floor construction to protect the entire floor surface from equipment damage.

FLOOR MATTING COLOR

The floor matting shall be black in color.

FLOOR EDGING

Tapered tile edging shall be installed along the matting edges. The beveled tile shall be custom fitted to the matting installed in the interior compartment. The tapered tile shall aid in the removal and installation of

equipment while protecting the floor edges from equipment damage.

FLOOR EDGING COLOR

The tapered edges shall be black.

SHELVING

The shelving shall be made out of .190 inch (4.83 mm) smooth aluminum sheet material with a formed 2.00 inch (50.80 mm) lip on the front and back.

The side mounting brackets shall be provided for vertical adjustment.

Standard manufacture shelf construction capacity ratings are as follows, any requested change to the manufacture's standard design may affect/reduce the ratings accordingly:

Shelving shall be rated at a capacity of 200 pounds (90.72 kg) and applicable to the design configuration.

The following shelving shall be provided:

UPPER HALF DEPTH SHELVING

A full width x half depth shelf shall be provided and installed in the upper area of the compartment specified.

There shall be a total quantity of four (4) provided.
- One (1) located in the L1 compartment.
- One (1) located in the L3 compartment.
- One (1) located in the R1 compartment.
- One (1) located in the R3 compartment.

ROLL OUT TRAY(S)

Each tray shall be fabricated of .19 inch (4.83 mm) thick 3003 grade or higher aluminum sheet material with four (4) 3.00 inch (76.20 mm) side flanges, corner welded for maximum strength and shall be as wide and as deep as compartment allows.

The following shall be supplied:

ROLL-OUT ASSEMBLY/AUSTIN

The floor mounted tray shall be full width and shall be secured to an Austin Hardware 22.00 inch (558.80 mm)

long ball bearing "heavy duty" slide assembly. The slide assemblies shall incorporate cadmium plated ball bearing roller slides and a lock-in, lock-out front drawer release system (FDR).

The tray shall have a 300# capacity and 100% extension.

There shall be a total quantity of two (2) provided.
- One (1) located in the L3 compartment.
- One (1) located in the R3 compartment.

FIXED DEPTH SWING-OUT TOOL BOARD/ALUMINUM

An aluminum swing-out tool board with DA finish shall be installed in the compartment as specified. The tool board shall be fabricated within a structural tubular frame, supported on a pivot rod, seated in bearings attached to the compartment floor and upper bracket.

The tool board shall be capable of swinging open to a position perpendicular to the rear wall. A thumb latch and gas shock shall be installed to keep the board in the open and or closed positions.

There shall be a total quantity of one (1).
The pull-out/swing-out style tool board shall have RED reflective striping installed making the perimeter of the tool board more readily visible.
- One (1) located in the L2 compartment.

WALL MOUNTED TOOL BOARD/ALUMINUM

An aluminum tool board with DA finish shall be installed to the back wall of the compartment as specified. The tool board shall be mounted directly to unistrut material attached to the upper back wall.

There shall be a total quantity of one (1).
- One (1) located in the R2 compartment.

SIDE RUB RAILS (ALUMINUM CHANNEL)

The lowest edge of the apparatus body side compartments shall be trimmed with brightly anodized aluminum channel rub rail material.

The rub rails shall be approximately 3.00 inches high with flanges turned outwards for increased rigidity, with each end chamfered to a 45 degree angle. The rub rails shall not be constructed as an integral part of the apparatus body structure, allowing each rub rail to be easily removed in the event of damage.

The rub rails shall be secured with stainless steel fasteners and spaced away from the apparatus body with .50

inch nylon spacers to help absorb moderate side impacts and prevent the collection of water and debris for easier cleaning.

RUB RAIL REFLECTIVE STRIPING

One inch reflective 3M "Diamond Grade" striping shall be applied to the length of each side rub rail section making the perimeter of the apparatus more readily visible.
The reflective striping shall be white in color.

REAR RUB RAIL (ALUMINUM CHANNEL)

The rearward edge of the rear step shall be trimmed with brightly anodized aluminum channel rub rail.

The rub rail shall be approximately 3.00" high with flanges turned outwards for increased rigidity, with each end chamfered to a 45 degree angle. The rub rail shall not be constructed as an integral part of the apparatus body structure, allowing the rub rail to be easily removed in the event of damage.

The rub rail shall be secured with stainless steel fasteners and spaced away from the edge of the rear step with .50 inch nylon spacers, to help absorb moderate rear impacts and prevent the collection of water and debris for easier cleaning.

RUB RAIL REFLECTIVE STRIPING

One inch reflective 3M "Diamond Grade" striping shall be applied to the length of the rear rub rail section making the rear of the apparatus more readily visible.
The reflective striping shall be white in color.

FOLDING STEPS

Cast Products, Inc. model #SP6610-1CH dual LED illuminated folding steps, made of high strength die cast aluminum with a protective chromed coating, pyramid tread platform, conforming to current NFPA requirements, shall be provided and installed on the apparatus as specified.

The steps shall have a minimum of 46 sq. inches of surface area capable of sustaining a 1200 lb. static load. The steps shall be mounted no more than 18" inches between each step.

STEP LOCATION

Three (3) folding steps shall be installed on the right rear vertical face of the body.

10" HANDRAIL

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One (1) 1.25-inch diameter handrail constructed of extruded aluminum with 10.00 inches of grip surface shall be installed in a location above the rear step(s) and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

To be located at Precon

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

STEP LOCATION

Three (3) folding steps shall be installed on the left rear vertical face of the body.

10" HANDRAIL

One (1) 1.25-inch diameter handrail constructed of extruded aluminum with 10.00 inches of grip surface shall be installed in a location above the rear step(s) and in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

To be located at Precon

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

INTERMEDIATE REAR STEP

The rear step shall be 8.00 inches (203.20 mm) in depth. Handhold cutouts shall be provided in the top step surface measuring approximately 2.50 inches deep. There shall be one (1) full length aluminum non lit handrail integrated into the assembly.

The step shall be mounted on the flat back of the apparatus with gusset-type mounting to provide sufficient support for loading hose and gaining access to the hose bed area.

The platform stepping surface shall be constructed of .188 inch (4.76 mm) embossed aluminum diamond plate materials.

INTERMEDIATE REAR STEP LOCATION

The rear step shall be located as high as possible beneath the hose bed floor.

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STEP LIGHTING

One (1) light shall be installed to illuminate the stepping areas as provided. The light shall be a LED Tube light model #RX-15T16-5050-21CM with an aluminum mounting bezel.

The light shall be directed towards and positioned above the stepping surfaces.

STEP LIGHT ACTIVATION

The step light shall be activated when the park brake is set.

HANDRAILS KNURLED ALUMINUM

All handrails shall be 1.25 inches in diameter, constructed of extruded aluminum with a knurled grip and bright anodized finish.

There shall be a minimum of 2.00 inches of clearance between the bracket and the body in accordance with (NFPA) 1901, Standard for Automotive Fire Apparatus.

The following handrails shall be installed at the approximate lengths noted:

42" HANDRAILS

Two (2) 1.25-inch diameter handrail constructed of bright-anodized knurled extruded aluminum with 42.00 inches of grip surface shall be located vertically with offset mounting stanchions. One (1) handrail shall be mounted one each side of the center compartment on the rear of the apparatus with the offset directed away from storage door openings where applicable. There shall be a minimum of 2.00 inches of clearance between the bracket and the body.

TOW EYES

There shall be two (2) rear tow eyes installed to the frame rails, one each side, accessible below the rear of the apparatus.

They shall be manufactured of 1.00 inch plate steel and each plate shall be bolted to the chassis frame rail with a minimum quantity of six (6) grade 8 bolts. The two plates shall be anchored together with 1.00 inch steel tubing to prevent swaying of the frame rails during a towing operation. All steel components shall be painted black.

LOW-VOLTAGE ELECTRICAL SYSTEM

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The apparatus shall be equipped with a Logic Controlled, Low-Voltage (12v) Electrical System, compliant with the latest revision of the (NFPA) 1901, Standard for Automotive Fire Apparatus.

The system shall be capable of performing total load management, load management sequencing, and load shedding via continuous monitoring of the low-voltage electrical system. In addition, the system shall be capable of switching loads (similar to operating as an emergency warning lamp flasher) eliminating the dependency on many archaic electrical components such as conventional flasher modules. The system shall also incorporate provisions for future expansion or system modification.

The low-voltage electrical system shall be designed to distribute the placement of electrical system hardware throughout the apparatus thereby enabling a smaller, optimized wire harness. The programmable, logic controlled system shall eliminate redundant electrical hardware such as extra harnesses, circuit boards, relays, circuit breakers, and separate electrical or interlock subsystems and associated electronics for controlling various electrical loads and inputs.

As-built electrical system drawings and an apparatus-specific reference of I/O shall be furnished in the final delivery manuals. These drawings shall illustrate the electrical system broken down into separate functions, or small groups of related functions. Drawings shall depict circuit numbers, electrical components and connectors from beginning to end. **A single drawing for all electrical circuits installed by the apparatus manufacturer shall not be accepted**.

MULTI-PLEXED ELECTRICAL WARRANTY

A four (4) year limited (V-MUX) multiplex system warranty, of Weldon Technologies, Inc.; shall be provided by the apparatus manufacture for parts and labor, while under normal use and service; against mechanical, electrical and physical defects from the date of installation.

The warranty shall exclude; sensors, shunt interface modules, serial or USB kits, transceivers, cameras, GPS, and electrical display screens, which shall be limited to a period of one a (1) year repair parts and labor from the date of installation.

NODE

An electrical distribution node or relay shall be installed in the below locations of the apparatus body.

The pump node shall be mounted as high as practical in the full depth portion of the right front compartment.

The rear body nodes shall be mounted as high and as far rearward as practical on the back wall of the rearmost compartment.

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A protective cover shall be installed to prevent damage to the node or electrical system during equipment installation and or removal. Node covers shall be approximately 16.00 to 22.00 inches in length with an inspection hole positioned for view of the node indicator LED lights. The finish of the cover shall match the compartments interior finish. Node covers will not include any type of shelve mounting structure and shall limit the height of unistrut or shelf height within the compartments.

PERIMETER LIGHTS LOCATION

There shall be six (6) underbody perimeter lights installed on the apparatus positioned to provide illumination to the immediate ground area around the unit.

One (1) under each side at the front of the body, one (1) under each side at the rear of the body, and two (2) under the rear tailboard.

PERIMETER LIGHTS

The underbody perimeter lights provided will be TecNiq model T44 series, 4" round, 8 diode LED lights.

PERIMETER LIGHTS ACTIVATION

The perimeter lights under the body shall illuminate the area with the activation of the chassis ground lights.

UPPER LIGHTING PACKAGE

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the upper areas of the vehicle.

UPPER ZONE B&D-FORWARD:

There shall be two (2) Whelen model 900 series Super-LED lights with black bezels provided and installed with the apparatus.

There shall be one (1) each side of the body in the upper forward corners.

SIDE WARNING LIGHTS FLASH

The upper side lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors.

SIDE WARNING LIGHTS COLOR

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The upper warning lights mounted on the side positions shall be red with clear lenses.

UPPER ZONE B&D-REAR:

There shall be two (2) Whelen model 900 series Super-LED lights with black bezels provided and installed with the apparatus.

There shall be one (1) each side of the body in the upper rear corners.

SIDE WARNING LIGHTS FLASH

The upper side lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors.

SIDE WARNING LIGHTS COLOR

The upper warning lights mounted on the side positions shall be red with clear lenses.

UPPER ZONE C:

There shall be two (2) Whelen model L31H*FN beacons with 360 degree LED lights, provided and installed on the apparatus.

One (1) each side on the rear upper outboard corners of the apparatus.

REAR WARNING LIGHTS COLOR

The upper warning lights mounted at the rear shall be red with clear lenses.

CAST ALUMINUM LIGHT STANCHIONS

Two (2) light stanchions shall be mounted in the upper rear corners of the body sides, one each side. Each shall be large enough to accommodate an upper zone C rotating beacon and a hose bed light if specified. The DOT lights specified elsewhere in the quote shall also be located one on the side and the other located on the rear of each stanchion.

AUXILIARY UPPER ZONE C:

There shall be two (2) Whelen model 900 series Super-LED lights with black bezels, one (1) each side, provided and installed with the apparatus.

REAR WARNING LIGHTS FLASH

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The rear upper lights shall feature multiple flash patterns including steady burn.

REAR WARNING LIGHTS COLOR

The upper warning lights mounted at the rear shall be red with clear lenses.

UPPER REAR WARNING LIGHT SWITCH E-MASTER/VISTA

The upper rear warning lights shall be controlled through the master warning switch and a secondary rear warning switch located on the Vista display control screen. The switches shall be clearly labeled for ease of identification.

LOWER LED WARNING LIGHTING

The following NFPA lighting package, manufactured by Whelen, shall be supplied and installed in the lower areas of the vehicle.

LOWER ZONE B&D:

There shall be six (6) Whelen model WION LED lights with chrome housings, three (3) each side, provided and installed with the apparatus.

SIDE WARNING LIGHTS FLASH

The lower side lights shall feature multiple flash patterns including steady burn.

SIDE WARNING LIGHTS COLOR

The lower side warning lights mounted on the side positions shall be red with clear lenses.

SIDE WARNING LIGHTS LOCATION

The warning lights on the side of the apparatus shall be mounted below the pump compartment module, centered on the rear wheel well panel and at the rear tailboard location.

LOWER SIDE WARNING LIGHT SWITCH E-MASTER/VISTA

The lower side warning lights shall be controlled through the master warning switch and a secondary side warning switch located on the Vista display control screen. The switches shall be clearly labeled for ease of identification.

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LOWER ZONE C:

There shall be two (2) Whelen model 600 series Super-LED lights with chrome bezels, one (1) each side, on provided and installed on the rear of the body.

REAR WARNING LIGHTS FLASH

The lower side lights shall feature multiple flash patterns including steady burn for solid colors and multiple flash patterns for split colors.

REAR WARNING LIGHTS COLOR

The lower rear warning lights mounted at the rear shall be red with clear lenses.

LOWER REAR WARNING LIGHT SWITCH E-MASTER/VISTA

The lower rear warning lights shall be controlled through the master warning switch and a secondary rear warning switch located on the Vista display control screen. The switches shall be clearly labeled for ease of identification.

LED REAR TAILLIGHT ASSEMBLY

There shall be Whelen model 600 series 4X6 LED rear taillight assemblies provided and installed with the apparatus, one (1) each side at the rear

The following shall be installed in the order as specified from top to bottom:

One (1) 604BTTC LED red brake/taillight
One (1) 604TC LED amber turn signal light populated in the shape of an arrow
One (1) 604BU LED clear back-up light

MOUNTING ASSEMBLY

There shall be Whelen 4-position vertical chrome plated housing provided for each taillight assembly.

The upper most open cavity shall be filled with the specified warning light for the rear of the apparatus.

REAR TAILLIGHTS COLOR

The taillights mounted at the rear shall have colored lenses to match the color of the optics.

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BACKUP LIGHTS

The backup lights shall illuminate when the apparatus is placed in reverse.

LED DOT LIGHTING

There shall be seven (7) lights located on the rear of the apparatus. Three (3) of the lights shall be mounted on the rear of the apparatus center location, for use as identification lamps. Two (2) additional lights shall be located on the rear outboard locations, one (1) each side as high as possible. Two (2) lights shall be mounted on the sides facing the side at the rear corners, for use as clearance lamps.

The lights shall be TecNiq S17 series LED red markers with red lens.

DOT ADDITIONAL MARKER LIGHTS

There shall be two (2) amber LED intermediate marker lights/intermediate turn signals installed in the rub rail, forward of the rear wheel well, one (1) each side.

The lights shall be TecNiq S17 series LED amber markers/turn with amber lens.

INTERMEDIATE TURN SIGNALS

The intermediate turn signals will flash with the turn indicators.

AUXILIARY SIDE DOT LIGHTING

There shall be two (2) auxiliary DOT lights supplied on the running boards at the rear of the pump house, one (1) on each side.

The lights shall be TecNiq brand S17 series LED red markers with red lens.

REAR DIRECTIONAL LIGHTBAR

There shall be a Whelen model #TAL65 36.00 inch long directional lightbar with six (6) amber 500 series LED light heads provided and installed on the apparatus.
The rear directional lights shall be controlled by a Whelen Model TACTL5 control head.

RDL CONTROL HEAD MOUNTING LOCATION

Rear Directional Lightbar control head shall be recess mounted in the center rocker panel.

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DIRECTIONAL LIGHTBAR LOCATION & PROTECTION

The rear directional light bar shall be surface mounted directly below the intermediate step and installed as high as possible at the rear of the apparatus.

REAR VIEW CAMERA LOCATION

A camera shipped loose with the chassis shall be surface mounted at the center location on the rear of the apparatus body for maximum viewing capability. A protective shroud shall be installed over the system to protect against damage.

6 POSITION 12-VOLT POWER FUSE BLOCK

A Blue Sea Systems #5025 Six (6) Circuit ST Blade Fuse Block shall be provided. The fuse panel shall be protected by a 40amp battery direct load.

A 6 position Blue Sea Systems fuse block shall be provided in each of the following locations:

ACCESSORY POWER LOCATION

12v accessory power shall be provided in the L1 body compartment.

There shall be a total of one (1) provided.
The accessory power shall be located in the compartment, as outboard as practical on the middle portion of the forward wall.

ACCESSORY POWER LOCATION

12v accessory power shall be provided in the R1 body compartment.

There shall be a total of one (1) provided.
The accessory power shall be located in the compartment, as outboard as practical on the middle portion of the forward wall.

SIDE SCENE LIGHT LOCATION

There shall be four (4) scene lights installed on the sides of the apparatus, two (2) on each side.

One (1) located at the front and one (1) located at the rear corner.
The scene lights on the side shall be positioned inboard of the warning lights specified.

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SCENE LIGHT MODEL

FireTech Guardian Elite model #FT-GESM-B series LED scene lighting shall be surface mounted on the apparatus.

Each lamp head shall have one (1) 12v LED panel at 125 watts total. The light head shall draw 10.0 amps and generate 12,290 effective lumens. Each LED panel shall be mounted within the black housing. Each lamp head shall be no more than 8.50 inches in height by 10.51 inches in width.

BODY SIDE SCENE LIGHT ACTIVATION

The scene lighting shall be activated with the chassis side scene lights with additional switch at Pump Panel.

REAR SCENE LIGHT LOCATION

There shall be two (2) scene lights installed on the rear facing vertical surface of the apparatus, one (1) on each side.
The scene lights on the rear vertical panel shall be positioned far outboard on each side below the warning lights specified.

SCENE LIGHT MODEL

FireTech Guardian Elite model #FT-GESM-B series LED scene lighting shall be surface mounted on the apparatus.

Each lamp head shall have one (1) 12v LED panel at 125 watts total. The light head shall draw 10.0 amps and generate 12,290 effective lumens. Each LED panel shall be mounted within the black housing. Each lamp head shall be no more than 8.50 inches in height by 10.51 inches in width.

REAR SCENE LIGHT ACTIVATION

The rear scene lighting shall be activated when the apparatus transmission is shifted into reverse and by a virtual button on the Vista display control screen in the cab and a weather resistant push button switch at the pump operator's panel. The scene shall also be interlocked with the park brake.

The switch shall be labeled as follows:

Rear Scene

TELELIGHT LOCATION

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The specified telelights shall be mounted in the rearward corner tubes of the pump compartment, one (1) each side, towards the body.

SCENE LIGHT MODEL

Fire Research Spectra LED Scene Light model SPA510C-Q15 top mount, top raise telescopic light shall be provided on the apparatus.

The light pole shall be anodized aluminum and have a knurled twist lock mechanism to secure the extension pole in position. The extension pole shall extend 4' and rotate 360 degrees. A 2.50 inch square mounting flange shall be provided.

The lamp head shall have sixty (60) ultra-bright white LEDs, 48 for flood lighting and 12 to provide a spotlight beam pattern. It shall operate at 12/24 volts DC, draw 13/6.5 amps, and generate 15,000 lumens of light. The lamp head shall have a unique lens that directs flood lighting onto the work area and focuses the spotlight beam into the distance. The lamp head angle of elevation shall be adjustable at a pivot in the mounting arm and the position locked with a round knurled locking knob. The lamp head shall be no more than 5.375 inches high by 14.00 inches wide by 3.75 inches deep and have a heat resistant handle. The lamp head and mounting arm shall be powder coated. The LED scene light shall be for fire service use.

INDICATOR LIGHT FOR RAISED POSITION

The scene light pole shall be equipped with an "up" indicator switch. When the parking brake is released, it shall activate the hazard light in the cab to warn the crew if the light is in the raised position.

BODY SIDE SCENE LIGHT ACTIVATION

The scene lighting shall be activated by two (2) weather resistant push button switches located on the pump operator's panel, one (1) for each side of the apparatus.

The switches shall be labeled as follows:

Left Scene

Right Scene

LINE VOLTAGE OUTLETS

NEMA 5-15 DUPLEX RECEPTACLE(S)

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There shall be one (1) type NEMA 5-15 120V/15A duplex receptacle with a cover installed in the below specified location(s).

NEMA 5-15 DUPLEX RECEPTACLE(S)

There shall be one (1) type NEMA 5-15 120V/15A duplex receptacle with a cover installed in the below specified location(s).

3M REFLECTIVE STRIPING

There shall be a 6.00 inch (152.40 mm), 3M reflective stripe with two (2) 1.00 inch (25.40 mm) accent stripes applied to the chassis and apparatus body as specified:
The above specified Striping shall consist of one color. The provided stripe shall be:
reflective stripe white in color.

STRIPE PATTERN

The reflective striping shall be applied around the perimeter of the front of the apparatus in a straight line. In addition, when the stripe reaches the front area of the body, the stripe shall jog in a 'Hockey Stick' shape pattern, then continuing around the rear of the apparatus at a slightly higher level.

REAR RETRO-REFLECTIVE CHEVRON STRIPING

A minimum of 50 percent of the rear-facing vertical surface, visible from the rear of the apparatus, shall be equipped with 3M Diamond Grade, retro-reflective striping in a chevron pattern, sloping downward and away from the centerline of the vehicle at an angle of 45-degrees.

The stripe shall be 6.00 inches (152.40 mm) wide alternating in colors.

CHEVRON COLOR

The retro-reflective chevron striping shall be Reflective Red and Black in color. Will be non NFPA compliant color package.

IMITATION GOLD LETTERING

Imitation Gold lettering with black shadowing and edging shall be provided and installed the apparatus body as directed by the Fire Department. A maximum total of one hundred (100) letters up to 3.00 inches (76.2 mm) high shall be provided.

CUSTOMER PROVIDED DECAL ARTWORK

The digital decal artwork shall be provided by the dealer/fire department. The artwork provided shall be a vector file such as EPS or AI formats.

DECAL LOCATION

The decals shall be applied to the upper cab area, one (1) each side.

CUSTOMER PROVIDED DECAL ARTWORK

The digital decal artwork shall be provided by the dealer/fire department. The artwork provided shall be a vector file such as EPS or AI formats.

DECAL LOCATION

The decals shall be applied to the B-1 rear compartment door.

LICENSE PLATE MOUNTING

A Cast Products, model LP0004-1-B, cast aluminum fully enclosed license plate bracket shall be installed. The bracket shall incorporate a clear LED light (WL0501) to illuminate the license plate and meet DOT requirements.

LICENSE PLATE BRACKET LOCATION

The above specified license plate bracket shall be installed at the back of the apparatus on the right side. The bracket shall be mounted to meet all applicable DOT standards.

MISCELLANEOUS EQUIPMENT

The following equipment list shall be provided with the completed apparatus.

WHEEL CHOCKS

One (1) set of NFPA compliant Ziamatic folding wheel chocks model # SAC-44-E shall be supplied with the apparatus.

ZICO WHEEL CHOCK MOUNTING BRACKETS

One (1) set of Ziamatic folding wheel chock underbody horizontal mounts, model # SQCH-44-H, shall be installed on the apparatus under the body in front of the rear wheels on the left side.

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EXTINGUISHERS

All NFPA required fire extinguishers will be supplied and installed by the Fire Department before the apparatus is placed into service.
All NFPA required portable hand lights will be supplied and installed by the Fire Department before the truck is placed into service.

FLARES

All NFPA required flares will be supplied and installed by the Fire Department before the truck is placed into service.

TRAFFIC CONES

All NFPA required traffic cones will be supplied and installed by the Fire Department before the truck is placed into service.

TRAFFIC VEST

All NFPA required traffic vest will be supplied and installed by the Fire Department before the truck is placed into service.

AED (AUTOMATIC EXTERNAL DEFIBRILLATOR)

All NFPA required AED units will be supplied and installed by the Fire Department before the truck is placed into service.

FIRST AID KIT

All NFPA required First Aid Kits will be supplied and installed by the Fire Department before the truck is placed into service.

SALVAGE COVERS

All NFPA required salvage covers will be supplied and installed by the Fire Department before the truck is placed into service.

AXES

All NFPA required Axes will be supplied and installed by the Fire Department before the truck is placed into service.

WRENCH SETS

All NFPA required spanner and hydrant wrenches will be supplied and installed by the Fire Department before the truck is placed into service.

NOZZLES

All NFPA required nozzles will be supplied and installed by the Fire Department before the truck is placed into service.

HANDHELD TOOLS

CLAW TOOL

All NFPA required claw tools will be supplied and installed by the Fire Department before the truck is placed into service.

HALLIGAN TOOL

All NFPA required Halligan tools will be supplied and installed by the Fire Department before the truck is placed into service.

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CROW BAR

All NFPA required crowbars will be supplied and installed by the Fire Department before the truck is placed into service.

SLEDGE HAMMER

All NFPA required sledge hammers will be supplied and installed by the Fire Department before the truck is placed into service.

RUBBER MALLET

All NFPA required rubber mallets will be supplied and installed by the Fire Department before the truck is placed into service.

SHOVELS

All NFPA required shovels will be supplied and installed by the Fire Department before the truck is placed into service.

BOLT CUTTER

All NFPA required bolt cutters will be supplied and installed by the Fire Department before the truck is placed into service.

SUPPLY HOSE

All NFPA required fire hose will be supplied and installed by the Fire Department before the truck is placed into service.

ADAPTORS

All NFPA required Adaptors will be supplied and installed by the Fire Department before the truck is placed into service.

SCBA & CYLINDERS (air packs)

All NFPA required SCBA and Cylinders will be supplied and installed by the Fire Department before the truck is placed into service.

RESOLUTION NO. 2022-0006

RESOLUTION EXEMPTING *PHASE 4 ENGINEERING SERVICES*

FROM G.S. 143-64.31

WHEREAS, G.S. 143-64.31 requires the initial solicitation and evaluation of firms to perform architectural, engineering, surveying, construction management-at-risk services, and design-build services (collectively "design services") to be based on qualifications and without regard to fee;

WHEREAS, the City proposes to enter into one or more contracts for design services for work on *Phase 4 Engineering;* and

WHEREAS, G.S. 143-64.32 authorizes units of local government to exempt contracts for design services from the qualifications-based selection requirements of G.S. 143-64.31 if the estimated fee is less than $50,000; and

WHEREAS, the estimated fee for design services for the above-described project is less than $50,000.

NOW, THEREFORE, THE *BOARD OF ALDERMAN* OF THE *TOWN OF NORTH TOPSAIL BEACH* RESOLVES:

Section 1. The above-described project is hereby made exempt from the provisions of G.S. 143-64.31.

Section 2. This resolution shall be effective upon adoption.

_____

Joann McDermon, Mayor

(Town Seal)

ATTEST: _____

Melinda Mier, Town Clerk