



Technical Memorandum

Reference: 022054.300
Date: April 22, 2024
To: Rob Holmlund (HBHRCD), Shane Phillips (M&N)
From: Jared O'Barr (SHN)
Subject: Redwood Marine Multipurpose Terminal Project Utilities Assessment

Disclaimer: This draft technical memorandum is a work-in-progress and is intended to be an internal document for use by the Humboldt Bay Offshore Wind Heavy Lift Marine Terminal Project team as a part of the conceptual design process and the ongoing permitting process. This memorandum is meant to be read as a part of a comprehensive packet of technical analyses. It is not written to be a standalone document and it is assumed that the reader has substantial project knowledge and context to understand the memorandum's content. All aspects of this memorandum are subject to change and may become less accurate over time. To better understand the project, please review the more comprehensive and up-to-date documents posted to the Humboldt Bay Harbor District's website at <https://humboltdbay.org/humboldt-bay-offshore-wind-heavy-lift-marine-terminal-project-3>.

Introduction

This memorandum provides a summary of the design considerations for existing and new utilities to facilitate the development of the Redwood Marine Multipurpose Terminal (RMMT) site. This summary includes preliminary recommendations for utility corridor size and location, an existing utility overview, an outline of the design constraints based on the current data limitations, and recommendations for the next phase of design. Figures are provided in Appendix 1.

The RMMT project is a multipurpose, heavy-lift marine terminal facility that will support the offshore wind energy industry and other coastal dependent industries. There are numerous stakeholders associated with this project, and those noted below will be referenced in this memorandum:

- Humboldt Bay Municipal Water District (HBMWD)
 - Water Supply—Domestic Potable, Industrial, and Fire Water
- Nordic Aquafarms (NAF)
 - Adjacent Development Project—Utility Coordination
 - Project Site Location—RMT II
- Town of Samoa (TOS) and Samoa Pacific Group (SPG)
 - Adjacent Project Developer—Utility Coordination
 - Existing Buildings Adjacent to Site—Utility Coordination
- Samoa Peninsula Community Services District (PCSD)
 - Wastewater Treatment—Utility Coordination
- Great Redwood Trail Agency (GRTA)
 - Adjacent Development Project—Utility and Site Access Coordination



- Sniper Enterprises, LLC (Sniper)
 - Adjacent Development Project—Utility and Site Access Coordination
- California Redwood Company (CRC)
 - Adjacent Development Project—Utility and Site Access Coordination
- Fire Marshal
 - Fire Water—Design Coordination

1.0 Existing Utilities

This project site is a former 300-acre industrial site that has been occupied by sawmills, planing mills, a cutting mill, warehouses, kilns, drying sheds, lumber storage, refuse burners, a dock, and shipping operations. Much of the large-scale industrial activity occurred between the period of 1920 to 2005, with current site operations limited to log storage and fishing related activities. The utilities on the project site consist of electrical, natural gas, fire protection water, future bay water, storm drain, and sanitary sewer. It is anticipated that these utilities will be re-routed outside of the project limits or demolished and removed from the site. The existing utility information is limited so additional investigation including utility locating services, ground survey, and coordination with the responsible entities will be required to determine the full extent and use of the existing utilities.

1.1 Re-Routed Utilities

Many existing site utilities cross through the site serving users throughout the Samoa Peninsula. The services outlined in this section will be demolished and re-routed so that they can remain functional throughout the development of the RMMT. Information regarding future electrical and gas utility needs has been provided by Schatz and Moffatt & Nichol (M&N). Figure 1 shows a preliminary map of the existing utilities at the site. Figure 2 shows preliminary re-route options within the offsite utility corridor.

- Electrical—Per Keynote 3 of Figure 1, overhead electrical and the associated easements will be re-routed from their current location to the Utility Corridor along Vance Avenue.
- Natural Gas—Per Keynote 2 of Figure 1, the natural gas line will be demolished and re-routed from its current location to the Utility Corridor along Vance Avenue and within the West Access Road. This line is anticipated to be within the joint utility trench.
- Future Bay Water Intake—Per Keynote 11 of Figure 1, the Harbor District (HBHRCD) is proposing to install a bay water intake on the Red Tank Dock and associated conveyance piping to RMT II, the NAF project site. There will be no impact to this intake or distribution piping in Phase 1 of the RMMT Project. However, during Phase 2, the dock and intake are anticipated to conflict with the Southern Wharf (Wharf 2) of the RMMT project and the piping may need to be re-routed along a combined utility corridor for the project. A space is reserved in the Utility Corridor along the western project boundary to accommodate the re-routed bay water intake piping. Alternatively, this bay water intake piping could maintain the original proposed alignment along the bay shoreline. However, there is a seismically susceptible zone within 100 feet of the bay shoreline that must also be considered when finalizing the location of this piping (See Section 3.4).



- **Future Fire Suppression Line**—Per Keynote 8 of Figure 1, the Harbor District (HBHRCD) is proposing to install a fire suppression line in the same trench as the bay water intake from Red Tank to RMT II, the NAF project site. There will be no impact to this fire suppression piping in Phase 1 of the RMMT Project. However, during Phase 2, the Red Tank Dock will be demolished, and the piping may need to be re-routed. Alternatively, this fire suppression piping could maintain the original proposed alignment along the bay shoreline. However, there is a seismically susceptible zone within 100-feet of the bay shoreline that must also be considered when finalizing the location of this piping (See Section 3.4).
- **Storm Drain**—Per Keynote 6 of Figure 1, TOS has reservation easements that allow stormwater to drain from TOS across the RMMT project site to the Humboldt Bay on the eastern edge of the project. During RMMT site development, these stormwater features will need to be demolished and re-installed to maintain the current drainage pattern for TOS.
- **Sanitary Sewer**—Per Keynote 12 of Figure 1, TOS holds a reservation easement for a sewer line. The current use of this easement is unknown, but the encumbrance will need to be removed before development of RMMT begins. Coordination with TOS and the SPG will be needed to relocate the easement and associated infrastructure (if there is any) or remove the encumbrance.
- **Samoa Cookhouse and Timber Heritage Utilities**—The location, type, and quantity of the utilities serving the Samoa Cookhouse and Timber Heritage site have not been confirmed, but they likely pass through the project along the northern border of the site. Additional investigation and coordination are needed to confirm what utilities exist and how they should be re-installed.

1.2 Demolished Utilities

Utilities that exist within the project site but do not impact adjacent projects or developments will be demolished and removed or modified to be left in-place without impacting the RMMT development.

- **Stormwater**—Per Keynote 5 of Figure 1, the existing drain inlets and stormwater conveyance piping onsite that are not connected to any exterior development will be demolished or grouted to remain in-place.
- **Fire Water**—Per Keynote 1 on Figure 1, there is underground fire water piping connecting a network of fire hydrants on the site. This network does not connect to any exterior development and shall be demolished and removed from the project site. It is unclear where water for this system is supplied from. Further investigation is required.
- **Red Tank**—Per Keynote 7 of Figure 1, the Red Tank will be demolished and removed in Phase 2 of the RMMT project. The Red Tank does not currently serve any function for the surrounding developments and can be removed when RMMT construction begins in this area.

2.0 New Utilities

The utilities that are proposed to serve the site include domestic potable water, untreated industrial water, fire protection water, storm drain, sanitary sewer, electrical, roof mounted solar, and telecommunications. All the new utilities, existing site utilities that must be re-routed, and the planned



utilities for adjacent projects are included in the utility corridor and shown in Figure 2. The proposed site utilities are based on guidance from M&N as to what will be needed to operate the project, but additional guidance from the end user and project developer is necessary to refine the requirements. The site building layouts are conceptual and utility demands are estimated (See "Terminal Permitted and Future Operations" memo and "Electrical Infrastructure and Green Port Preliminary Design" memo prepared by M&N). New utility sizing is based on assumptions made by the project team, and the information provided in Attachment "A" of the "Terminal Permitted and Future Operations" memo. Based on the demands provided in Attachment "A" of that memo, the Sanitary Sewer and Domestic Water services described in this memo are likely to be oversized and may be able to be reduced as the design develops. Before final pipe sizes can be determined, peak flow information in Gallons per Minute (gpm) is needed. Fire flow demands for the site will also need to be determined. The utility sizing and layout will need to be refined as the design for the overall project progresses.

2.1 Proposed Offsite Utility Service Corridor

The proposed utility corridor composition (see Figure 2) is based on the utilities that are assumed to be required to facilitate the construction and operation of the RMMT project, the existing utilities re-routed from site, and the proposed new utilities from adjacent projects that require routing around the site. Code required separation distances were reviewed and used to space the utilities appropriately, as shown in Table 1. The size of the utilities serving the site was conservatively estimated based on assumed utility loads and demands. Once the detailed design phase commences, additional information is needed to provide accurate utility sizes based on demands and loads from the project site.

Table 1. Underground Utility Separation and Clearance Requirements (FT)

Type	Joint Trench	Sanitary Sewer	Storm Drain/ Sea Water	Industrial Water	Domestic Water	Underground Electrical Vault
Joint Trench	-	3 ^a	3 ^a	3 ^a	3 ^a	3 ^b
Sanitary Sewer	3 ^a	-	Not Specified ^c	Not Specified ^c	10H:1V ^d	3 ^b
Utility Reserved Space (Non-Potable Water)	3 ^a	Not Specified ^c	-	Not Specified ^c	4H:1V ^d	3 ^b
Industrial Water	3 ^a	Not Specified ^c	Not Specified ^c	-	4H:1V ^d	3 ^b
Domestic Water	3 ^a	10H:1V ^d	4H:1V ^d	4H:1V ^d	-	3 ^b
Underground Electrical Vault	3 ^b	3 ^b	3 ^b	3 ^b	3 ^b	-

a. PG&E Electric and Gas Service Requirements: Joint Trench Configurations and Occupancy Guide, Exhibit B, S5453

b. Guidance provided by Moffatt & Nichol and Schatz Energy Research Center

c. Specific guidance not found in code sections. Separation assumed to be 1X the outside pipe diameter of the larger utility.

d. State of California GUIDANCE MEMO NO. 2003-02: Guidance Criteria for the Separation of Water Mains and Non-Potable Pipelines. *Domestic Water is above adjacent utilities.



The two proposed alternatives for the utility corridor shown in Figure 2 are as follows:

- West Alternative (A)—Utilities Corridor is located within the GRTA railroad corridor right-of-way (ROW) per B. 171 Deeds P. 186, B.7190.R. P.599, and the 50-foot Pacific Gas and Electric (PG&E) Reserved Easement 1263-OR-610. This location is the furthest western extent of the project and would minimize encroachment onto the adjacent properties owned by Sniper Enterprises, LLC (Sniper) and California Redwood Company (CRC). This proposed location will require application and acceptance of an encroachment permit with GRTA. Based on guidance provided by M&N, from their initial coordination with GRTA, typically electrical and telecommunications lines are allowed parallel to or below the trail, while sewer and water lines are not allowed parallel to or below the trail. This alternate will also require relocation of the existing Sanitary Sewer and Domestic Water piping serving the Town of Samoa development, so coordination and approval from the SPG will be needed in order to proceed with this option.
- East Alternative (B)—Utility corridor does not encroach into the GRTA ROW and is located within the 50-foot PG&E Reserved Easement 1263-OR-610. However, encroachment onto the Sniper and CRC properties will be necessary at some locations.

Each of these corridor options will begin at the DG Fairhaven electrical substation and continue north along Vance Avenue until it enters the site at the Phase 1 project boundary. Based on the available information, the proposed utility corridor width varies between 35 feet and 65 feet, depending on the selected alternate. The required encroachment onto an adjacent property or right-of-way varies between approximately 0–38 feet to the west and 14–70 feet to the east depending on the selected alternate, per Figure 2. However, these widths will need to be verified once the draft utility needs and demand estimates have been finalized. More definitive discussions with adjacent property owners regarding required encroachment onto their properties can occur once utility types and sizes are confirmed, and the preferred utility corridor option is selected. SHN recommends the Utility Corridor West Alternative A be pursued in order to begin preliminary encroachment coordination with GRTA. However, we also recommend that East Alternative B remains in consideration in the event that GRTA rejects the project's application to encroach upon the railroad ROW.

The tie-in locations and expected uses for all utilities within the offsite utility corridor are as follows:

- Domestic Potable Water—The domestic water point of connection (POC) is at LP Drive on the western boundary of the project and connects to the existing 15-inch Humboldt Bay Municipal Water District's (HBMWD) domestic water main. Domestic water is anticipated at all site buildings and each wharf to provide water for restrooms, sinks, kitchens, drinking fountains, and other similar uses.
- Industrial Water—The industrial water POC is at the 2-million-gallon (MG) tank on RMT II, the future NAF project site, which is fed from the HBMWD's 42-inch raw water line. Industrial water is anticipated at all site buildings and each wharf to provide water for industry processes and potentially for fire water. It is not clear if pump stations will be required to support the industrial water demand, or if a separate fire water line will be necessary to accommodate the fire flow requirements for the project, further investigation, coordination, and design is required.
- Fire Water—If a separate fire water line is required, there currently is not enough information to determine the POC as the source could be from either HBMWD domestic or industrial water. It is



assumed that industrial water would be used because it is expected to be cheaper. The line would route to all site buildings and wharfs to provide the required fire water flow. Additional information regarding building uses, loads and demands for each building and wharf will be required to determine the fire water source, and if a fire water tank and emergency fire pump are required. The fire water line is expected to provide water to a network of fire hydrants around the site perimeter, near buildings, and adjacent to each wharf. Additional use and demand information is required to determine the layout of these hydrants.

- **Reserved Utility Space**—In order to provide a conservative size estimate, the utility corridor includes a reserved space for a non-potable water utility that is yet to be determined.
- **Sanitary Sewer**—The sanitary sewer system is proposed to be connected to the current or future Samoa Peninsula Community Services District (PCSD) wastewater treatment facility (WWTF). It is not clear if the current WWTF will still be in operation when the RMMT project begins operations, or the future WWTF will be constructed and serving this project site. Refer to Section 3.3 of this memorandum for additional information regarding the current and proposed WWTF facilities serving the peninsula developments. The connection to either WWTF will likely be near the current location of the facility along what will be Milwaukee Ave. The sanitary sewer lines will route from each building, through one of two sewage lift stations, and to one of the WWTFs previously mentioned via force main. Treated wastewater from the WWTF will be pumped to the existing 48-inch ocean outfall pipe on the west side of the NAF site.
- **Power**—There is space reserved for an electrical transmission trench, electrical vaults, and joint trench in the utility corridor shown in Figure 2. All electrical outside of the site bounds will be routed underground per guidance provided by M&N.
- **Solar Power**—There is a proposed solar array at the ash landfill south of the RMMT project site, and on the rooftops of buildings on the project site (See “Electrical Infrastructure and Green Port Preliminary Design Memo”). Transmission lines associated with the landfill array are intended to connect to the existing Pulp Mill Substation on the southern boundary of the project and into the underground electrical trench to serve the project. Transmission lines for the rooftop solar arrays are intended to connect to the onsite joint utility trench. Additional coordination and investigation will be necessary to confirm that adequate space is reserved within the utility corridor.
- **Telecommunications**—Telecommunication lines including phone and internet services are anticipated to be routed into the site via the joint trench within the utility corridor.

2.2 Adjacent Project Utilities—Current and Proposed

There are two major developments that are ongoing or scheduled to begin prior to the completion of the RMMT project, these include the TOS Subdivision and the NAF projects.

The TOS development has reservation easements for sanitary sewer and stormwater to travel through the project site. These reservations are relocatable, but further coordination with TOS and PCSD will be necessary to determine the provisions for this relocation. The active sanitary sewer force main serving the TOS, leaves the Samoa WWTF and runs to the 48-inch ocean outfall. It is expected that any new



developments or modifications to the sanitary sewer system will maintain this alignment. The storm drain outfalls that serve the TOS run across the project as shown in Figure 1. It is expected that these outfall pipes will be demolished and replaced in a similar location and will not impact the RMMT offsite utility corridor. The location and elevation of the new storm drain outfalls will require additional coordination with the grading contractor to ensure that flooding of the TOS does not occur.

The RMT II site has an existing waste disposal leach field, but it is anticipated that the field will not meet the demands of the NAF project once developed and will not be used. Per Section 3.13 of the NAF environmental impact report (EIR), NAF has planned to install a 6-inch sanitary sewer force main from their project site to the Samoa WWTF via the Vance Avenue utility corridor. The assumed location of the force main is shown in Figure 2, but the location is not yet determined, so coordination with NAF, PCSD, and TOS will be necessary to determine the layout. The NAF project also requires the use of a natural gas line, this line is routed through the RMMT project site as shown in Figure 1. It is anticipated that this gas line will be removed from the RMMT project site and routed through the Vance Avenue offsite utility corridor via the joint trench. Section 2.4.2 and Figure 2-5 of the NAF EIR reference new bay water intake and fire suppression water lines from the Red Tank Dock and Red Tank, respectively, to the RMT II site. It is anticipated that these structures would remain in-place during Phase 1 of the RMMT project but may need to be relocated during Phase 2 when the southern wharf is constructed, and development of Phase 2 begins.

2.3 Onsite Utility Routing

The project site plan, building layout, and building utility demands estimates are draft, so the onsite utility routing displayed in Figure 3 is based on assumptions by M&N and SHN. It is assumed that all buildings onsite will require domestic water, industrial/fire water, sanitary sewer, telecommunication, and power. The wharves are assumed to require domestic water, industrial/fire water, and power. The utility corridor has reserved space for a joint trench that is anticipated to include telecommunications and electrical. The onsite utilities are routed along the perimeter of the project to minimize impact to the utilities from the industry vehicle and equipment traffic. This routing should be evaluated relative to the seismically susceptible zone within 100 feet of the bay shoreline; the onsite corridor and this zone coincide at some locations, which could lead to settlement and liquefaction issues (See Section 3.4).

It is expected that there will be two sanitary sewer lift stations that are connected to the buildings onsite and routed to the Samoa WWTF. The site's fire water system and source are not defined because the fire water demand is unknown. A water storage tank and emergency fire pump may be needed to obtain the required fire flow for the project, so space is reserved for these features as shown in Figure 3. Additional analysis and design of the onsite utility routing will be necessary once the building layout and utility demands are finalized. This analysis will confirm the source for all utilities, the services to each building, and the size and configuration of the onsite utility corridor.

3.0 Design Considerations

Additional design efforts will be necessary to refine all aspects of the onsite and offsite utility routing when defined design parameters are available and agreed to.



3.1 Industrial Water Supply

The HBMWD's industrial water system was designed and constructed to provide approximately 60MG/day of raw water to the peninsula to serve the former pump mills. This system does not have any treatment, so the turbidity of the Mad River, HBMWD's water source, is directly proportional to the turbidity in the industrial water system. It may be necessary to modify the existing system to reduce the turbidity of the water supply. The system was sized for a larger capacity than what will likely be required to support the RMMT and the surrounding developments on the peninsula, which has likely led to deterioration of the system since the closure of the pulp mill. Once the RMMT project's industrial, domestic, and fire water demands are confirmed, coordination with the HBMWD will be necessary to determine if modifications to the system will be needed.

3.2 Domestic Water Supply

The domestic water system on the peninsula is nearing its current capacity and is constrained by approximately 3.5 miles of 15-inch water line. Replacing the 15-inch line with a 24-inch line will likely be necessary to increase the available domestic water supply on the peninsula south of Manila. There could be additional factors constraining the capacity of the domestic water supply, such as the Ranney collector intakes in the Mad River. A comprehensive analysis of all current developments and future developments on the peninsula should be performed to fully evaluate the capacity restrictions.

3.3 Wastewater Treatment

The existing Town of Samoa WWTF is regulated by the North Coast Regional Water Quality Control Board (RWQCB) through the National Pollutant Discharge Elimination System (NPDES), RWQCB Order R1-2020-0005 (adopted April 16, 2020). The WWTF is owned and operated by the PCSD and discharges disinfected secondary treated wastewater to the Pacific Ocean. The ocean discharge occurs through an ocean outfall pipe located at RMT II, which is owned and operated by the Harbor District. Wastewater is treated at the Samoa WWTF using primary settling tanks, pre-anoxic tanks, recirculating biological filtration units, and ultraviolet (UV) light disinfection. The disinfected and treated effluent is pumped from the WWTF to an intertie with the ocean outfall pipe at RMT II. The force main that conveys the treated effluent from the WWTF to the ocean outfall is approximately 0.75 miles long, 4-inches in diameter, and follows the proposed alignment for Vance Avenue included in the Town of Samoa Improvement plans from the Samoa Pacific Group (California Engineering Company, engineer).

The following information is taken directly from the RWQCB discharge permit (Order R1-2020-0005, Attachment F-Fact Sheet).

"The WWTF is designed with a capacity of 52,800 gallons per day (gpd) average dry weather flow, and 75,600 gpd peak daily wet weather flow which correspond to the projected flows from Phase III of the Town of Samoa development (full build-out; refer to Town of Samoa Master Plan for description of phases). Coordination with the PCSD and review of the Coastal Development Permit should occur to determine if wastewater can be accepted from any users outside of the Town of Samoa Master Plan development area."



The proposed/future Samoa Peninsula WWTF would serve the entire PCSD service area which extends from the Humboldt County campground to the south, to the Highway 255 bridge to the north, west to the ocean, and east to the Humboldt Bay. This includes the Towns of Samoa, Fairhaven, and Finntown, and all industrial sites. The new WWTF would replace the existing WWTF with a larger capacity and different treatment technology. It is not clear if the existing WWTF will be relocated or improved in place.

During installation of the 4-inch force main connecting the existing WWTF to the ocean outfall in October 2020, a second 4-inch pipe was installed in the same trench to allow the HBHRCD to connect RMT II to the WWTF. The pipe from RMT II to the WWTF diverged from the alignment to the ocean outfall, turning to the east toward RMT II, somewhere along Vance Avenue north of the ocean outfall intertie.

3.4 Preliminary Geotechnical Analysis

The preliminary geotechnical analysis of the site indicates that there is a 100–200-foot zone near the bay shoreline that is susceptible to settlement in both static and seismic conditions; see “Preliminary Geotechnical Memorandum for 15% Design Submittal” prepared by Moffatt & Nichol:

- **Static Conditions**—After installing the wick drains and placing the surcharge, the slopes at the waterfront are stable under static conditions provided that the storage loads are applied at least 100 ft away from the shoreline. The consolidation-induced (static) settlement during surcharge placement is estimated to be 33–34 inches and up to 3 inches after the surcharge load is removed. Thus, it is recommended by Moffatt & Nichol that utility lines are constructed after the surcharge load is removed.
- **Seismic Conditions**—Under seismic conditions, however, these slopes are subject to several feet of movement (for example, more than 10 feet), regardless of the amount and location of the storage load. To mitigate slope movements under seismic conditions, Moffatt & Nichol recommends improving the ground (using CDSM or jet grout). As such, the slope movements can be reduced to less than 1 foot and there will be flexibility in placing utilities close to the shoreline (if planned) after the ground improvement.

If ground improvement is not considered, the utilities may need to be placed at least 200 feet beyond the shoreline to avoid large lateral displacements.

The amount of liquefaction-induced vertical settlement is approximately up to 11 inches. As such, without ground improvement, the total amount of vertical settlement during the seismic event will be 11 inches + half of the lateral slope movement.

4.0 Further Coordination & Considerations

Coordination with organizations and entities that supply resources to the project site, or those that are impacted by the development of the RMMT project is necessary in the next phases of the project.



4.1 Necessary Entity Coordination

Further coordination is needed with the following entities, the list below summarizes the information needed from each entity to progress the RMMT project's design:

- Humboldt Bay Municipal Water District (HBMWD)
 - Constraints and sources for the project's industrial, potable domestic, and fire water systems
 - Required modifications to the existing systems to support the RMMT project
- Nordic Aquafarms (NAF)
 - Locations and requirements for NAF industrial water, sanitary sewer, power, and bay water intake, and any other utilities that could impact the RMMT project
 - Preliminary information included in this memorandum is based on section 3.13 of the NAF EIR, but further coordination with NAF is necessary to confirm the information provided.
- Town of Samoa (TOS) and Samoa Pacific Group (SPG)
 - Locations and requirements for sanitary sewers, lift stations, power, and stormwater related to the Samoa Subdivision, Samoa Cookhouse, and the Timber Heritage property
 - Preliminary information included in this memorandum is based on the TOS Master Plan and Humboldt County Conditions of Approval, but further coordination with SPG is necessary to confirm the information provided.
- Peninsula Community Services District (PCSD)
 - Where the RMMT project's wastewater will be treated
 - If modifications to the WWTF will be needed to accommodate the RMMT project
- Great Redwood Trail Agency (GRTA)
 - An application for a trail and utilities will be made with GRTA to begin the approval process for placement of the utilities.
- Fire Marshal
 - Fire water requirements for the RMMT project development

4.2 Next Phase Considerations

As the project progresses, there are some primary considerations that should be addressed to inform and refine the approach to developing the site. Primary considerations are summarized below:

1. Finalize estimates of industrial water, potable domestic water, fire water, sanitary sewer, telecommunications, and power demands for the site (wharves and buildings). This will enable further coordination with utility suppliers for refinement of the onsite and offsite utility corridors and establish fire hydrant design.



2. Finalize wastewater demand estimates for each phase of the project so that the capacity of the Samoa WWTF and the potential need for upgrades can be evaluated.
3. Confirm the preferred utility corridor alternate (See Section 2.1).
4. Coordination with GRTA is necessary to determine if utilities can be placed within the Rail Corridor. Alternative "A" for the offsite utility corridor assumes that utilities can be placed within the Rail Corridor without restriction (See Section 2.1).
5. Determine the final site layout for each phase of the project, including finalized building and wharf locations, areas to place tanks and lift stations, and areas to avoid when routing the onsite utility corridor.
6. Confirm site settlement criteria and establish avoidance areas to refine the onsite utility corridor routing. Site settlement could have a significant impact on buried utilities and will require further consideration and coordination with the geotechnical team (See Section 3.4).
7. Confirm if utilities serving the project or those serving adjacent projects, should be placed within the seismically susceptible area within 200 feet of the bay shoreline (See Section 3.4).
8. Evaluate a buffer distance beyond the offsite utility corridor prior to requesting any encroachments or easements from adjacent property owners.
9. Confirm the preferred location of the bay water intake and fire water conveyance piping. It is currently assumed that there will be no impact to this infrastructure during RMMT Phase 1. During RMMT Phase 2, it is assumed that the intake will be relocated to the southern wharf, the red tank dock will be demolished, and that the bay water and fire water conveyance piping may need to be re-routed to avoid the wharf structure.
10. Coordination with NAF to determine all other components of the development that could impact the RMMT project.
11. Coordinate with the SPG to determine the current and future locations of utilities serving the Samoa Subdivision, Samoa Cookhouse, and Timber Heritage properties.
12. Ground survey and analysis to determine the extents and locations of existing utilities onsite.

Appendix 1. Figures

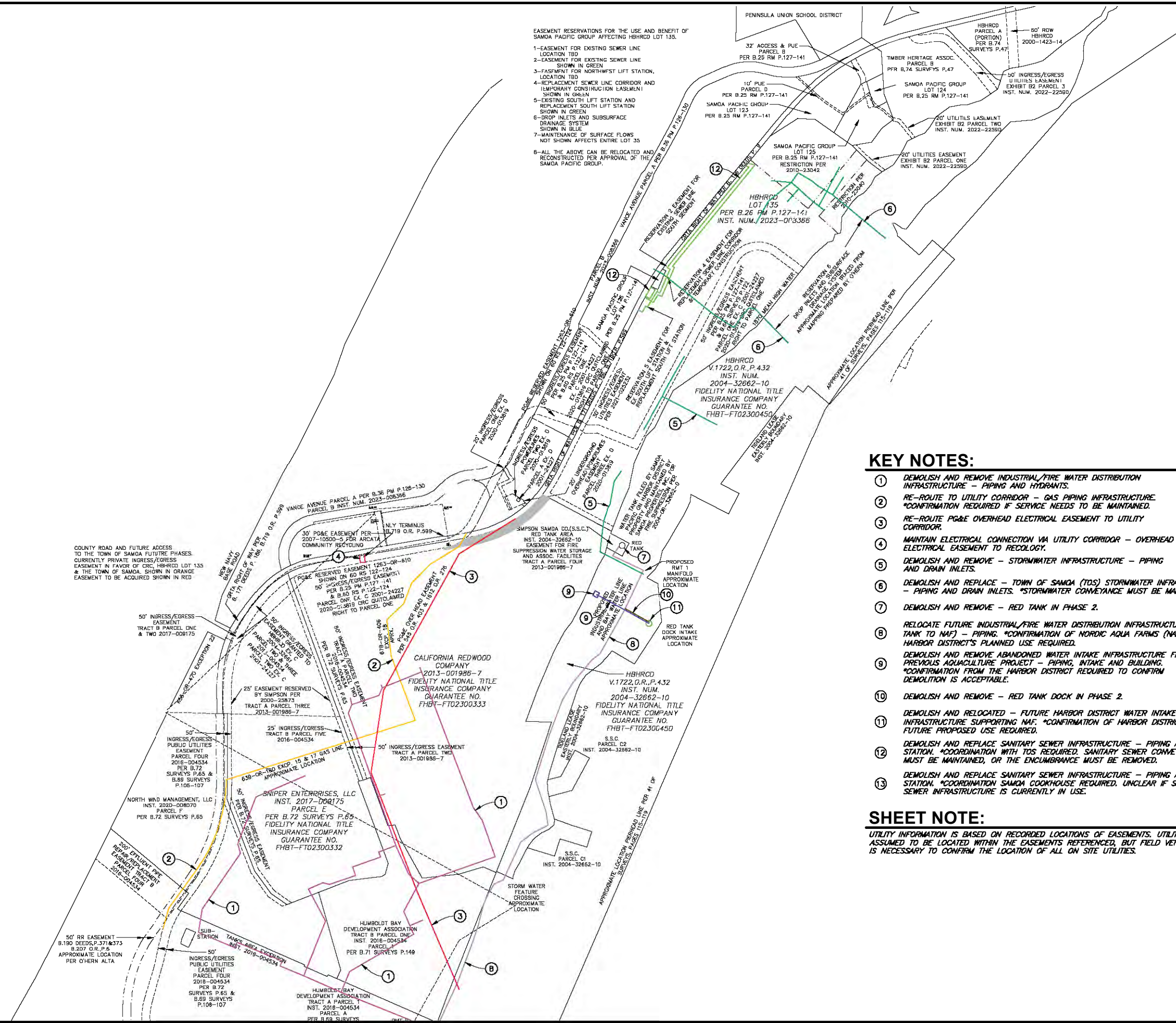


Figures **1**

Figure 1
Existing Utilities and Easements

SAVED: 1/8/2024 3:23 PM JFOSTER, PLOTTED: 1/8/2024 3:23 PM JOHN FOSTER
 P:\Lureka\2022\022054-Humboldt-RMKT.Dwg (022054-EXIST-UTIL.dwg)

- EASEMENT RESERVATIONS FOR THE USE AND BENEFIT OF SAMOA PACIFIC GROUP AFFECTING HBHRCD LOT 135.
- 1-EASEMENT FOR EXISTING SEWER LINE LOCATION TBD
 - 2-EASEMENT FOR EXISTING SEWER LINE SHOWN IN GREEN
 - 3-FASFPMT FOR NORTHWEST LIFT STATION, LOCATION TBD
 - 4-REPLACEMENT SEWER LINE CORRIDOR AND TEMPORARY CONSTRUCTION EASEMENT SHOWN IN GREEN
 - 5-EXISTING SOUTH LIFT STATION AND REPLACEMENT SOUTH LIFT STATION SHOWN IN GREEN
 - 6-DROP INLETS AND SUBSURFACE DRAINAGE SYSTEM SHOWN IN BLUE
 - 7-MAINTENANCE OF SURFACE FLOWS NOT SHOWN AFFECTS ENTIRE LOT 35
 - 8-ALL THE ABOVE CAN BE RELOCATED AND RECONSTRUCTED PER APPROVAL OF THE SAMOA PACIFIC GROUP.



KEY NOTES:

- 1 DEMOLISH AND REMOVE INDUSTRIAL/FIRE WATER DISTRIBUTION INFRASTRUCTURE - PIPING AND HYDRANTS.
- 2 RE-ROUTE TO UTILITY CORRIDOR - GAS PIPING INFRASTRUCTURE. *CONFIRMATION REQUIRED IF SERVICE NEEDS TO BE MAINTAINED.
- 3 RE-ROUTE PG&E OVERHEAD ELECTRICAL EASEMENT TO UTILITY CORRIDOR.
- 4 MAINTAIN ELECTRICAL CONNECTION VIA UTILITY CORRIDOR - OVERHEAD ELECTRICAL EASEMENT TO RECOLOGY.
- 5 DEMOLISH AND REMOVE - STORMWATER INFRASTRUCTURE - PIPING AND DRAIN INLETS.
- 6 DEMOLISH AND REPLACE - TOWN OF SAMOA (TOS) STORMWATER INFRASTRUCTURE - PIPING AND DRAIN INLETS. *STORMWATER CONVEYANCE MUST BE MAINTAINED.
- 7 DEMOLISH AND REMOVE - RED TANK IN PHASE 2.
- 8 RELOCATE FUTURE INDUSTRIAL/FIRE WATER DISTRIBUTION INFRASTRUCTURE (RED TANK TO NAF) - PIPING. *CONFIRMATION OF NORDIC AQUA FARMS (NAF) AND HARBOR DISTRICT'S PLANNED USE REQUIRED.
- 9 DEMOLISH AND REMOVE ABANDONED WATER INTAKE INFRASTRUCTURE FROM PREVIOUS AQUACULTURE PROJECT - PIPING, INTAKE AND BUILDING. *CONFIRMATION FROM THE HARBOR DISTRICT REQUIRED TO CONFIRM DEMOLITION IS ACCEPTABLE.
- 10 DEMOLISH AND REMOVE - RED TANK DOCK IN PHASE 2.
- 11 DEMOLISH AND RELOCATED - FUTURE HARBOR DISTRICT WATER INTAKE INFRASTRUCTURE SUPPORTING NAF. *CONFIRMATION OF HARBOR DISTRICT'S FUTURE PROPOSED USE REQUIRED.
- 12 DEMOLISH AND REPLACE SANITARY SEWER INFRASTRUCTURE - PIPING AND LIFT STATION. *COORDINATION WITH TOS REQUIRED. SANITARY SEWER CONVEYANCE MUST BE MAINTAINED, OR THE ENCUMBRANCE MUST BE REMOVED.
- 13 DEMOLISH AND REPLACE SANITARY SEWER INFRASTRUCTURE - PIPING AND LIFT STATION. *COORDINATION SAMOA COOKHOUSE REQUIRED. UNCLEAR IF SANITARY SEWER INFRASTRUCTURE IS CURRENTLY IN USE.

SHEET NOTE:

UTILITY INFORMATION IS BASED ON RECORDED LOCATIONS OF EASEMENTS. UTILITIES ARE ASSUMED TO BE LOCATED WITHIN THE EASEMENTS REFERENCED, BUT FIELD VERIFICATION IS NECESSARY TO CONFIRM THE LOCATION OF ALL ON SITE UTILITIES.

PRELIMINARY

VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 D 1" = 100'
 F 1" = 100'
 SCALES ACCORDINGLY

812 W. WABASH AVE.
 SUITE 200
 WASHINGTON, CA 95071
 707-441-8855

SW

DESIGN	CC	NO.	DATE	BY
DIR	CDN/JWF			
CHK	JSO			
APVD				

REWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT
 SAMOA, CALIFORNIA

EXISTING UTILITIES AND EASEMENTS

SHEET **FIG 1**

SEQ

DATE 01/2024

PROJ. NO. 022054

Figure 2
Extended Utility Corridor

SAVED: 1/10/2024 8:12 AM JFOSTER, PLOTTED: 1/10/2024 8:13 AM JOHN FOSTER
 P:\Eureka\2022\022054-Humboldt-RMNT\Drawings\FIG-ALT.dwg

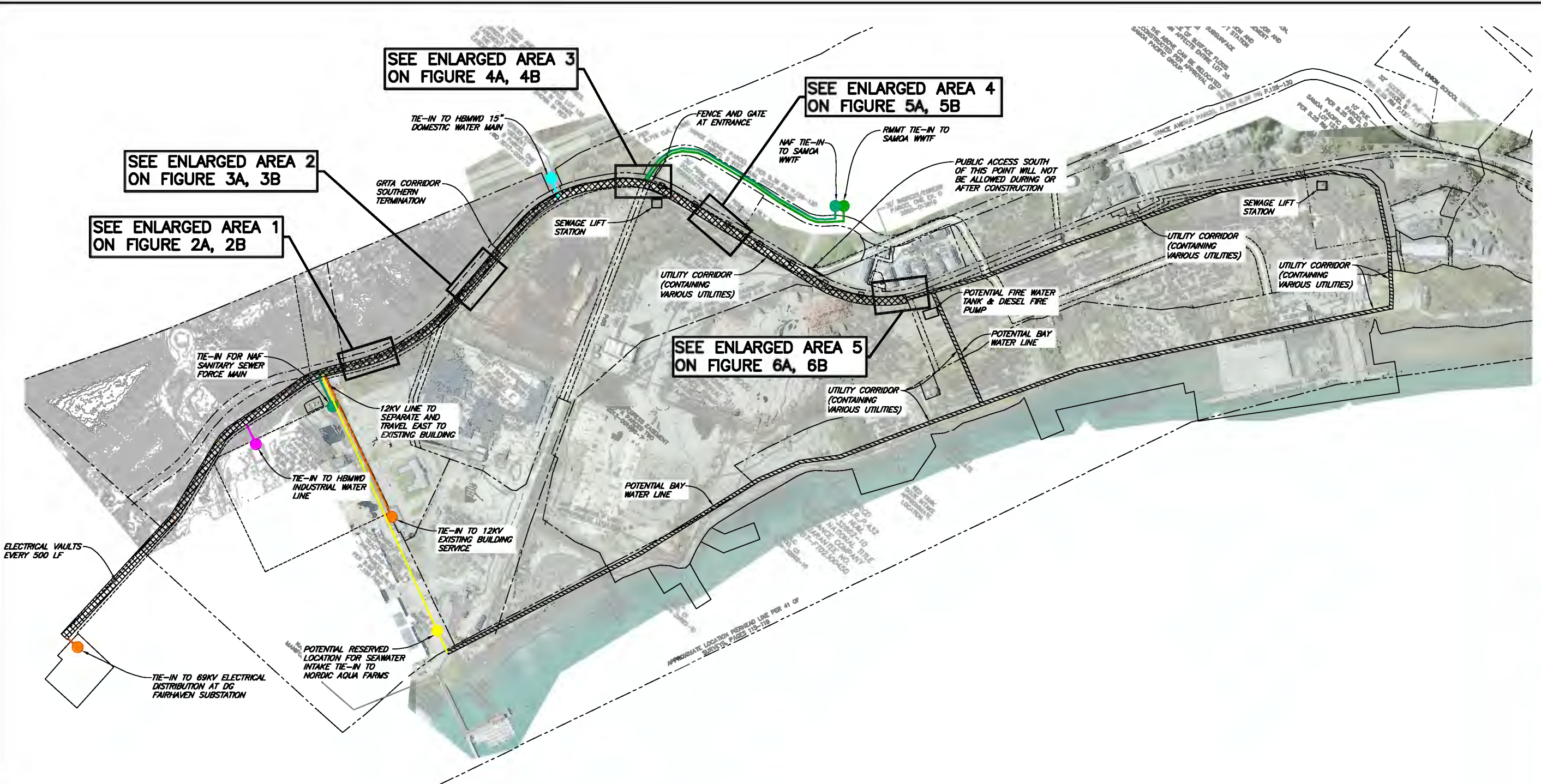


FIGURE TITLE DESCRIPTIONS

#A - UTILITIES SHIFTED WEST WITHIN RAILROAD/GRTA CORRIDOR.
 NOTE: THE GRTA/RAILROAD CORRIDOR TERMINATES SOUTH OF LP DRIVE. THE UTILITY ALIGNMENT CONTINUES ON THE SAME PATH SOUTH OF THE GRTA CORRIDOR TERMINATION.
 #B - UTILITIES SHIFTED TO THE EAST OUTSIDE OF THE RAILROAD/GRTA CORRIDOR.

LEGEND

- ELECTRICAL DISTRIBUTION TIE-IN
- 12" INDUSTRIAL WATER TIE-IN
- 12" DOMESTIC WATER TIE-IN
- 6" SANITARY SEWER TIE-IN
- 6" NAF SANITARY SEWER TIE-IN
- UTILITY RESERVED SPACE
- ELECTRICAL VAULT
- OFF-SITE UTILITY CORRIDOR
- ON-SITE UTILITY CORRIDOR
- FENCE



UTILITY PLAN ASSUMPTIONS:

1. PUBLIC ROAD SECTION 12' PAVED ROAD, 8' PAVED SHOULDER, 2' GRAVEL SHOULDER, AND 10' VEGETATED STRIP.
2. IT WILL BE ACCEPTABLE TO PLACE UTILITIES WITHIN THE RAILROAD CORRIDOR.
3. GAS WILL BE REQUIRED FOR RELOCATED UTILITIES ON-SITE, AND WOULD BE PLACED IN JOINT TRENCH BY OTHERS.
4. JOINT TRENCH WILL NOT CROSS BIO-SWALE.
5. JOINT TRENCH WILL REQUIRE 3" SET-BACK ON EITHER SIDE TO ACCOMMODATE WET UTILITIES AND STORMWATER FEATURES.
6. JOINT TRENCH IS 3' WIDE, BUT IS TO BE DESIGNED BY OTHERS.
7. SEAWATER INTAKE OR STORM DRAIN SPACE IS RESERVED.
8. 4' DRAIN INLETS WILL BE REQUIRED ALONG THE STORM DRAIN LINE.
9. THE LOCATIONS OF THE EXISTING SAMQA UTILITIES ARE NOT BASED ON SURVEY INFORMATION.
10. THE EXISTING SAMQA UTILITIES MEET CODE REQUIRED SEPARATION REQUIREMENTS.
11. WE HAVE ASSUMED A CLASS 1 BIKE TRAIL WILL BE CONSTRUCTED ON THE CENTERLINE OF THE RAILROAD/GRTA TRAIL CORRIDOR.
12. ASSUMED SIZES FOR UTILITIES ARE AS FOLLOWS, LOADS ARE REQUIRED TO COMPLETE SIZING:
 - 12" INDUSTRIAL WATER
 - 12" DOMESTIC WATER
 - 6" SANITARY SEWER
 - UTILITY RESERVED SPACE
13. THE UTILITY CORRIDOR INCLUDES ELECTRICAL AND GAS THAT WILL BE RE-ROUTED FROM THE PROJECT SITE AND PLANNED NORDIC AQUA FARMS DOMESTIC WATER LINE.

PRELIMINARY

VERIFY SCALES
 1" = 100' ORIGINAL DRAWING
 0 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

812 W. WABASH AVE.
 EUREKA, CA 95501
 WWW.SHN-ENGR.COM
 707-441-8855

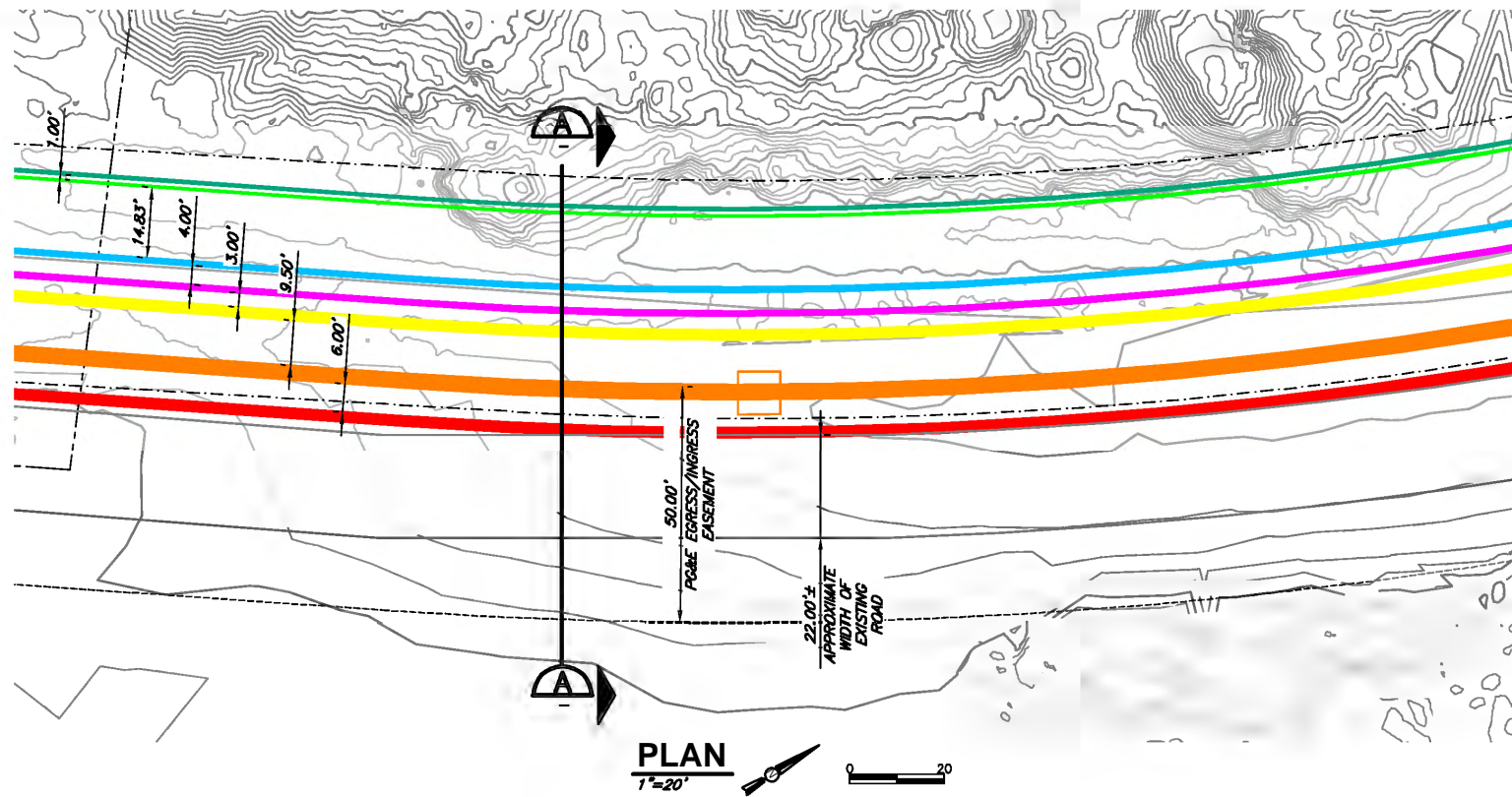
DESIGN	CC	BY
DR	CDN/JWF	DATE
CHK	JSO	NO.
APPV		REVISION

REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT
 SAMQA, CALIFORNIA

PROJECT OVERVIEW

SHEET
FIG 1
 SEQ
 DATE 01/2024
 PROJ. NO.
 022054

SAVED: 1/8/2024 4:24 PM JFOSTER, PLOTTED: 1/8/2024 4:31 PM JOHN FOSTER
 C:\Users\jfo22054\Documents\Redwood\Drawings\022054-UTL-FIG-11.dwg

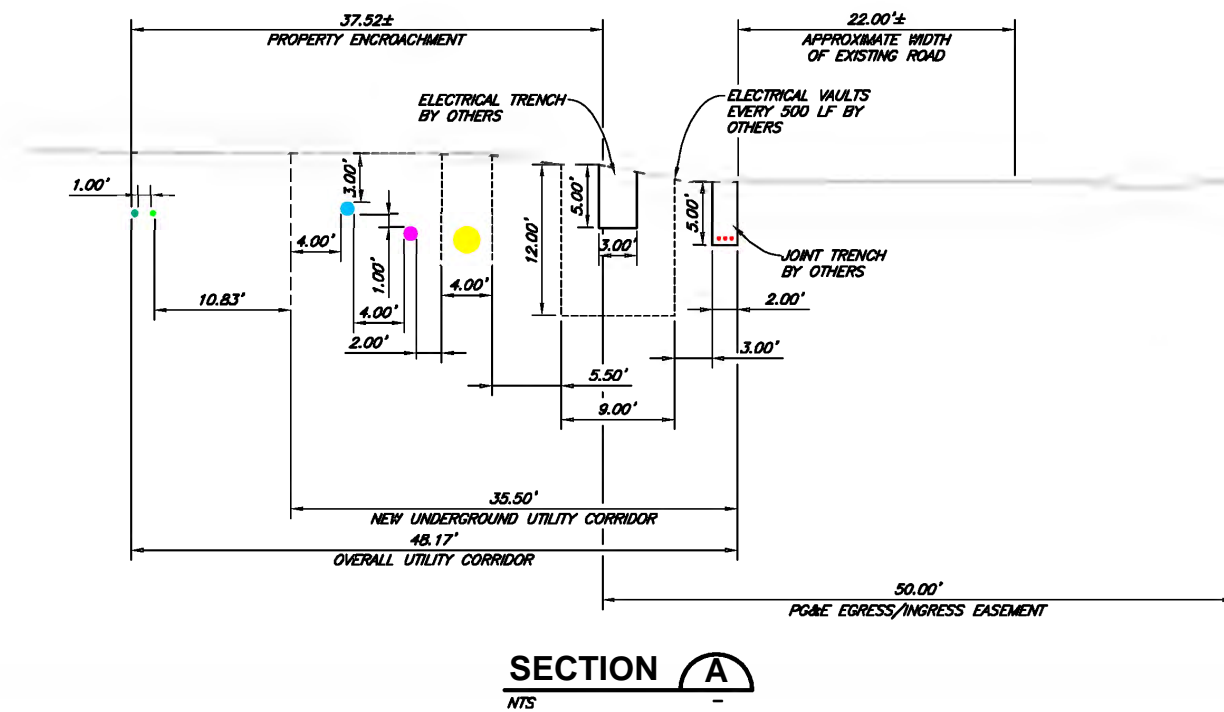


ALTERNATIVE 2A UTILITY SECTION DESCRIPTION

2A - NO ROAD IMPROVEMENTS, UTILITIES SHIFTED TO THE WEST WITHIN RAILROAD/GRTA CORRIDOR.

LEGEND

- █ 4" SAMOA SANITARY SEWER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
- █ 12" NORDIC AQUA FARMS DOMESTIC WATER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
- █ 6" NORDIC AQUA FARMS SANITARY SEWER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
- █ 12" INDUSTRIAL WATER
- █ UTILITY RESERVED SPACE
- █ 36" JOINT TRENCH, DESIGNED BY OTHERS
- █ 36" UNDERGROUND ELECTRICAL TRENCH, DESIGNED BY OTHERS
- ELECTRICAL VAULT, DESIGNED BY OTHERS

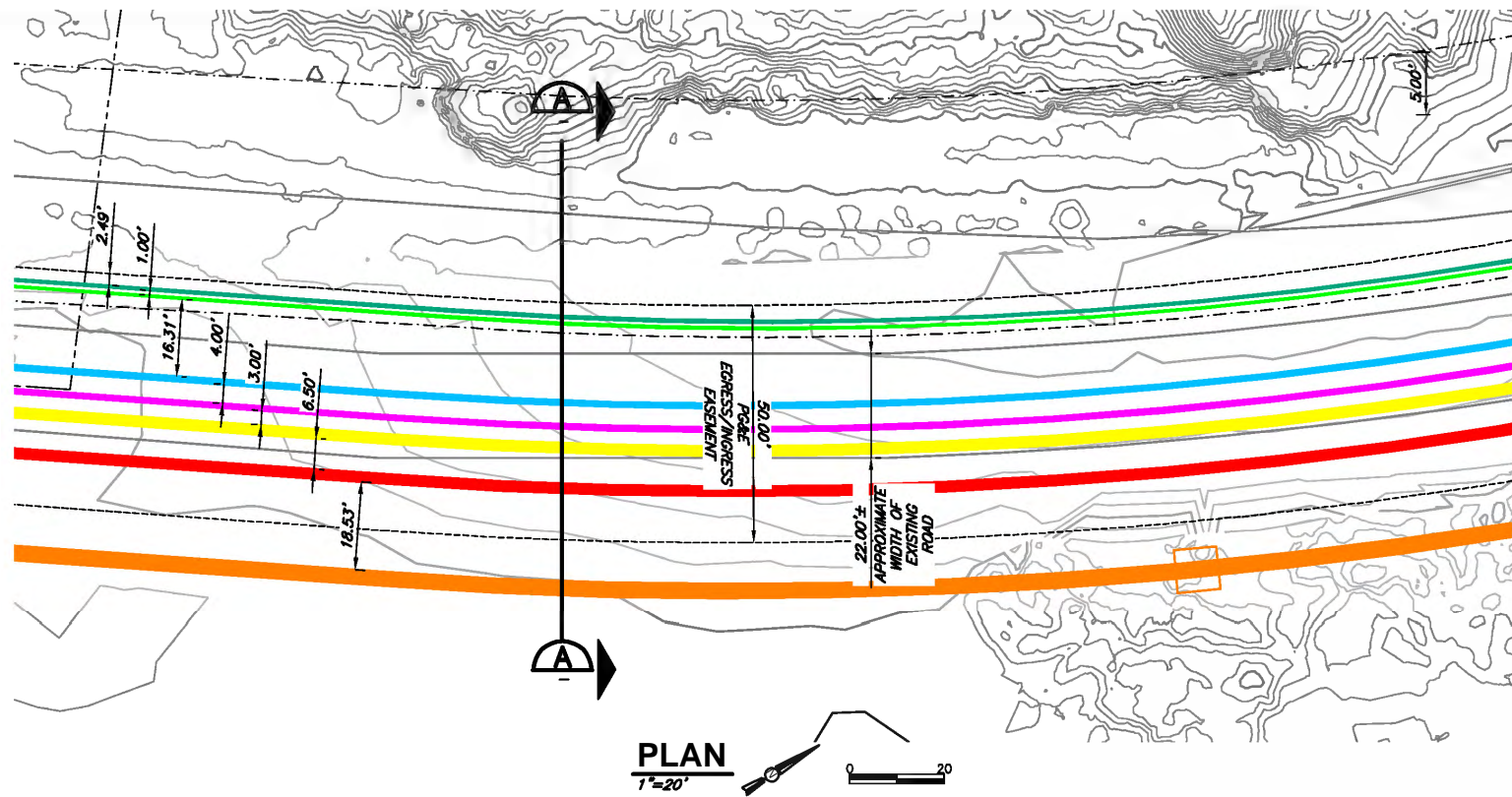


PRELIMINARY

		812 W. WABASH AVE. EUREKA, CA 95501 WWW.S&M-ENGR.COM 707-441-8855	
DESIGN	CC	DATE	NO.
DR	CDM/JWF		
CHK	JSO		
APPV			
REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT SAMOA, CALIFORNIA			
SITE UTILITY ENLARGED AREA 1			
FIG 2A			
DATE		01/2024	
PROJ. NO.		022054	

VERIFY SCALES
 1" = 1" IS ONE INCH ON ORIGINAL DRAWING
 1" = 1" IS ONE INCH ON THIS SHEET. ADJUST SCALES ACCORDINGLY.

SAVED: 1/8/2024 4:24 PM JFOSTER, PLOTTED: 1/8/2024 4:32 PM JOHN FOSTER
 C:\Users\jfo222\Documents\Projects\2024\022054-001-Fig2B-1.dwg

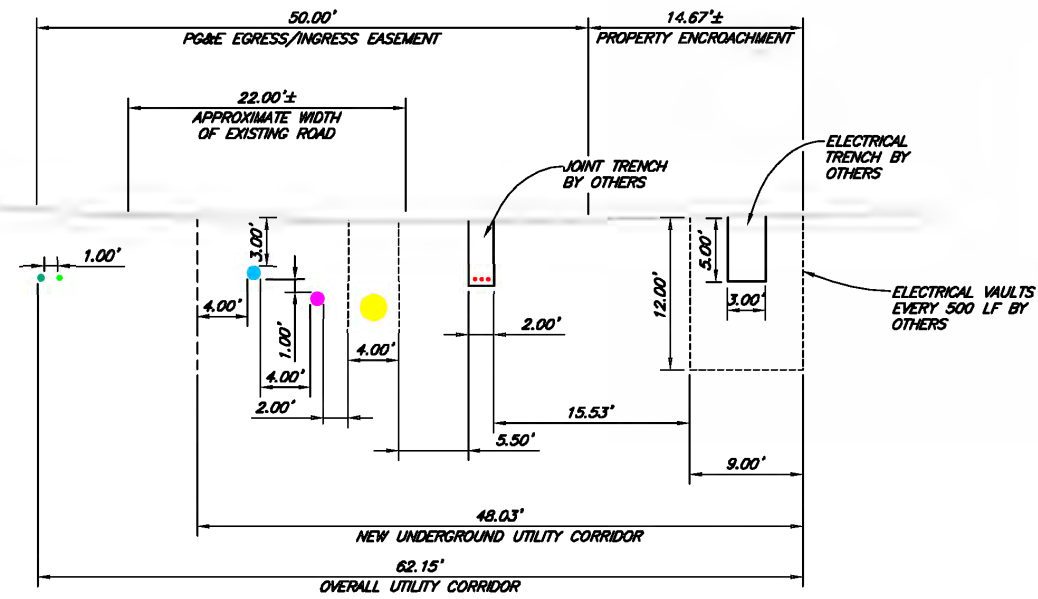


ALTERNATIVE 2B UTILITY SECTION DESCRIPTION:

2B - NO ROAD IMPROVEMENTS, UTILITIES SHIFTED TO THE EAST OUTSIDE OF THE RAILROAD/GRTA CORRIDOR.

LEGEND

- █ 4" SAMOA SANITARY SEWER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
- █ 12" NORDIC AQUA FARMS DOMESTIC WATER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
- █ 6" NORDIC AQUA FARMS SANITARY SEWER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
- █ 12" INDUSTRIAL WATER
- █ UTILITY RESERVED SPACE
- █ 36" JOINT TRENCH, DESIGNED BY OTHERS
- █ 36" UNDERGROUND ELECTRICAL TRENCH, DESIGNED BY OTHERS
- ELECTRICAL VAULT, DESIGNED BY OTHERS



SECTION A
NTS



PLAN
NTS

VERIFY SCALES
 1" = 1' IS ONE INCH ON ORIGINAL DRAWING
 0 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

812 W. WABASH AVE.
 EUREKA, CA 95501
 WWW.SHN-ENGR.COM
 707-441-8655



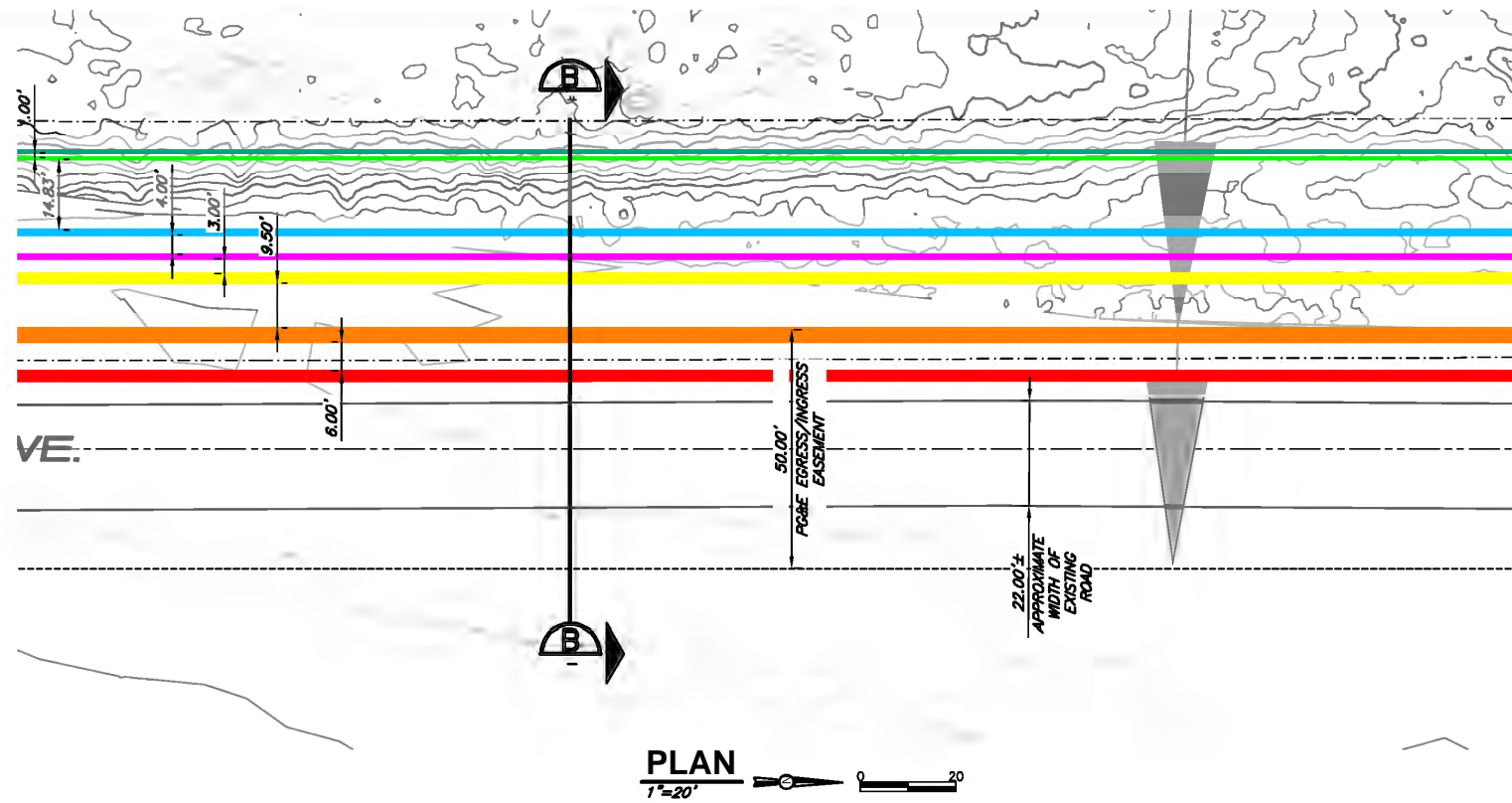
NO.	DATE	REVISION	BY

REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT
 SAMOA, CALIFORNIA
SITE UTILITY ENLARGED AREA 1

SHEET	FIG 2B
DATE	01/2024
PROJ. NO.	022054

PRELIMINARY

SAVED: 1/8/2024 4:24 PM JFOSTER, PLOTTED: 1/8/2024 4:33 PM JOHN FOSTER
 C:\Users\jfo229\Documents\Redwood\Drawings\022054-UTL-Fig-3A.dwg

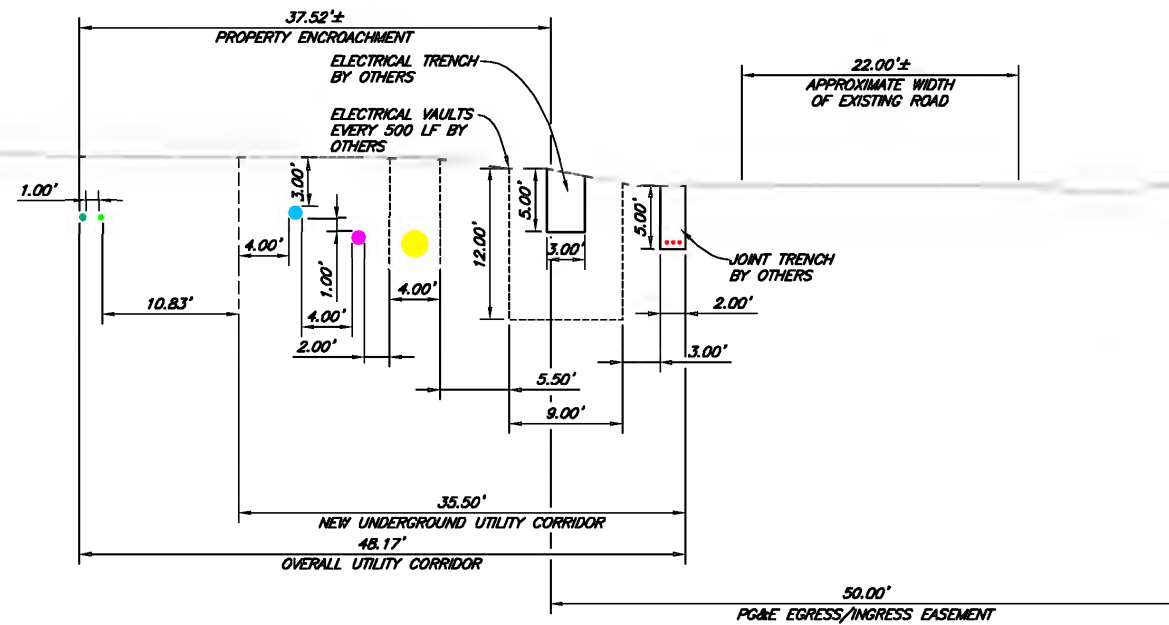


ALTERNATIVE 3A UTILITY SECTION DESCRIPTION:

3A - NO ROAD IMPROVEMENTS, UTILITIES SHIFTED TO THE WEST WITHIN RAILROAD/GRTA CORRIDOR.


LEGEND

- █ 4" SAMOA SANITARY SEWER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
- █ 12" NORDIC AQUA FARMS DOMESTIC WATER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
- █ 6" NORDIC AQUA FARMS SANITARY SEWER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
- █ 12" INDUSTRIAL WATER
- █ UTILITY RESERVED SPACE
- █ 36" JOINT TRENCH, DESIGNED BY OTHERS
- █ 36" UNDERGROUND ELECTRICAL TRENCH, DESIGNED BY OTHERS
- ELECTRICAL VAULT, DESIGNED BY OTHERS



VERIFY SCALES
 1" = 1' SCALE
 1" = 1' SCALE
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

812 W. WABASH AVE.
 EUREKA, CA 95501
 WWW.SHN-ENGR.COM
 707-441-8855



NO.	DATE	REVISION	BY

DESIGN	CC
DIR	CDM/JWF
CHK	JSO
APPV	

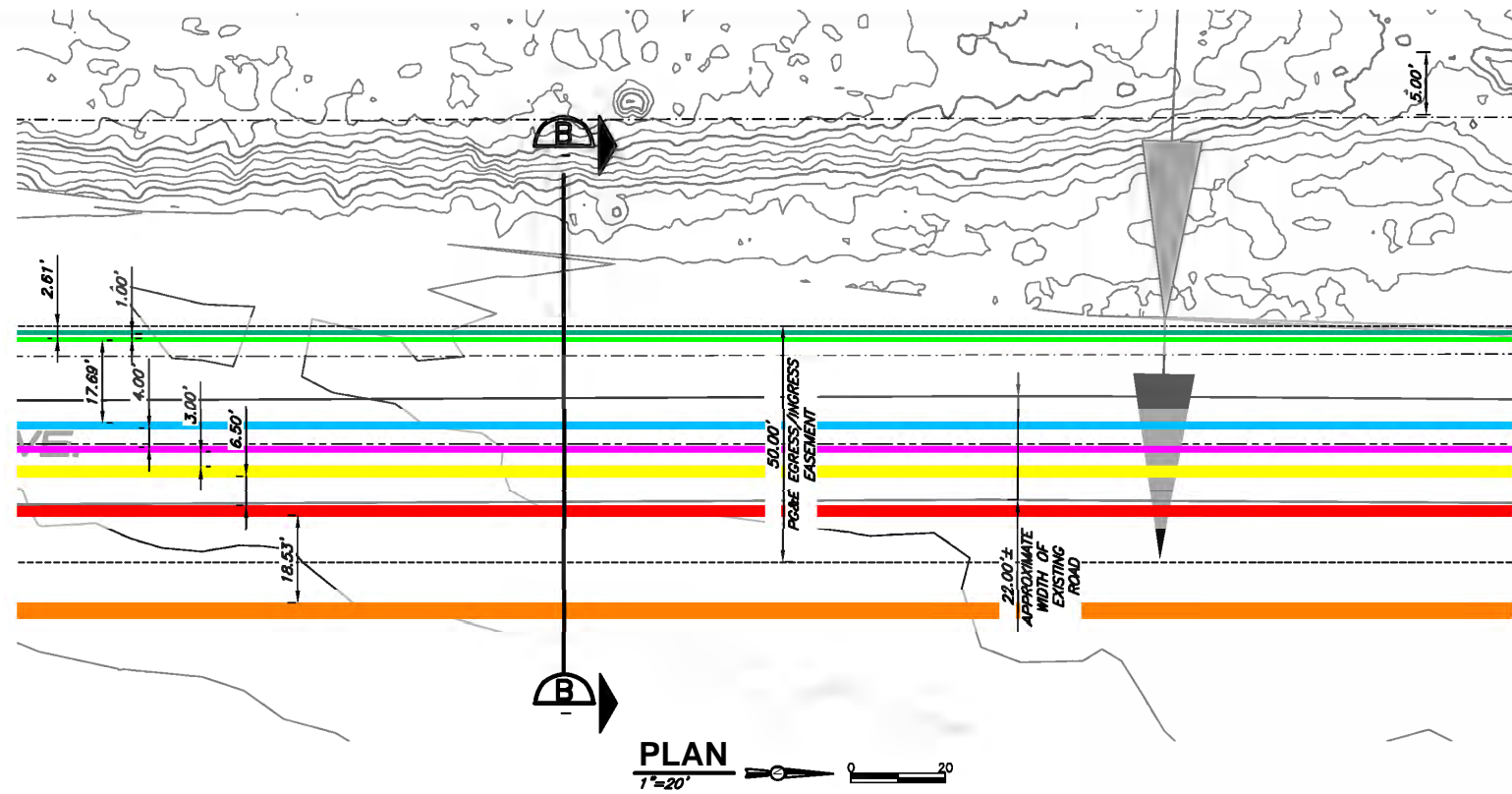
REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT
 SAMOA, CALIFORNIA

SITE UTILITY ENLARGED AREA 2

SHEET
FIG 3A
 SEQ
 DATE 01/2024
 PROJ. NO.
 022054

PRELIMINARY

SAVED: 1/8/2024 4:24 PM JFOSTER, PLOTTED: 1/8/2024 4:34 PM JOHN FOSTER

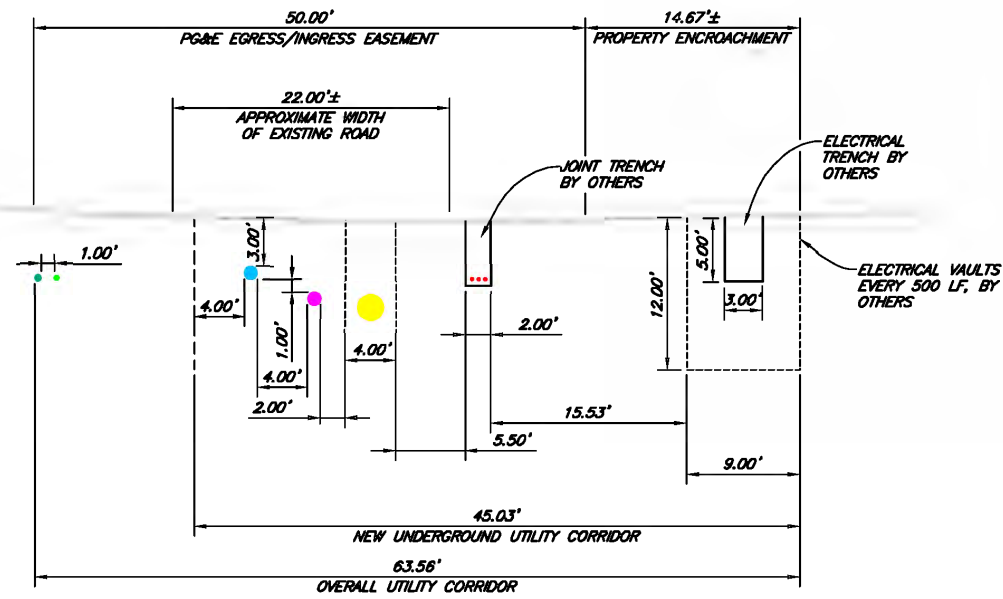


ALTERNATIVE 3B UTILITY SECTION DESCRIPTION:

3B - NO ROAD IMPROVEMENTS, UTILITIES SHIFTED TO THE EAST OUTSIDE OF THE RAILROAD/ORTA CORRIDOR.

LEGEND

- 4" SAMOA SANITARY SEWER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
- 12" NORDIC AQUA FARMS DOMESTIC WATER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
- 6" NORDIC AQUA FARMS SANITARY SEWER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
- 12" INDUSTRIAL WATER
- UTILITY RESERVED SPACE
- 36" JOINT TRENCH, DESIGNED BY OTHERS
- 36" UNDERGROUND ELECTRICAL TRENCH, DESIGNED BY OTHERS
- ELECTRICAL VAULT, DESIGNED BY OTHERS



VERIFY SCALES
 1" = 10' ON ORIGINAL DRAWING
 1" = 1" ON THIS SHEET. ADJUST SCALES ACCORDINGLY.

812 W. WABASH AVE.
 EUREKA, CA 95501
 WWW.SHN-ENGR.COM
 707-441-8855

SHN

USER	CC	DATE	NO.	REVISION	BY
DR	CDM/JWF				
CHK	JSO				
APPD					

REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT
 SAMOA, CALIFORNIA

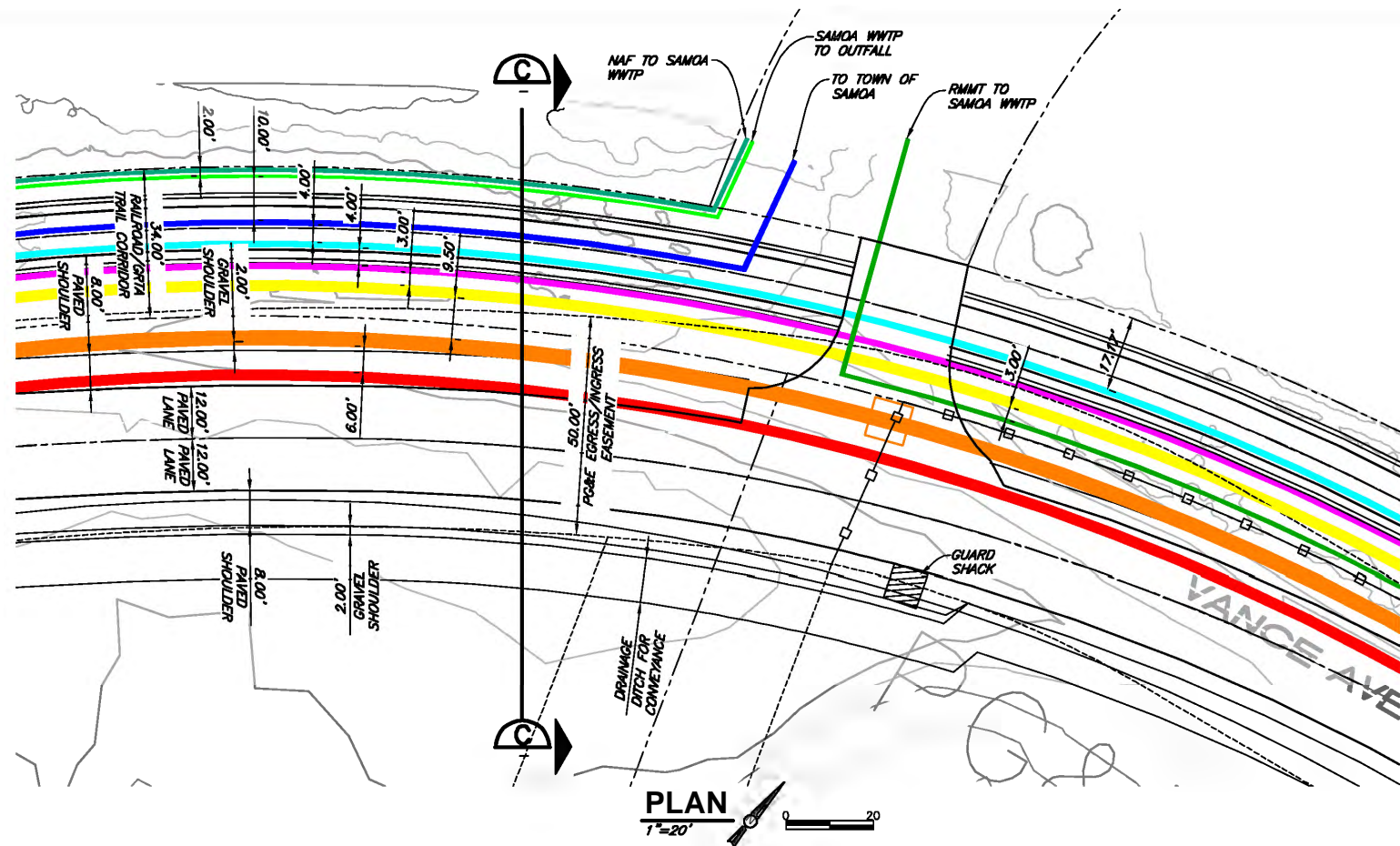
SITE UTILITY ENLARGED AREA 2

SHEET
FIG 3B

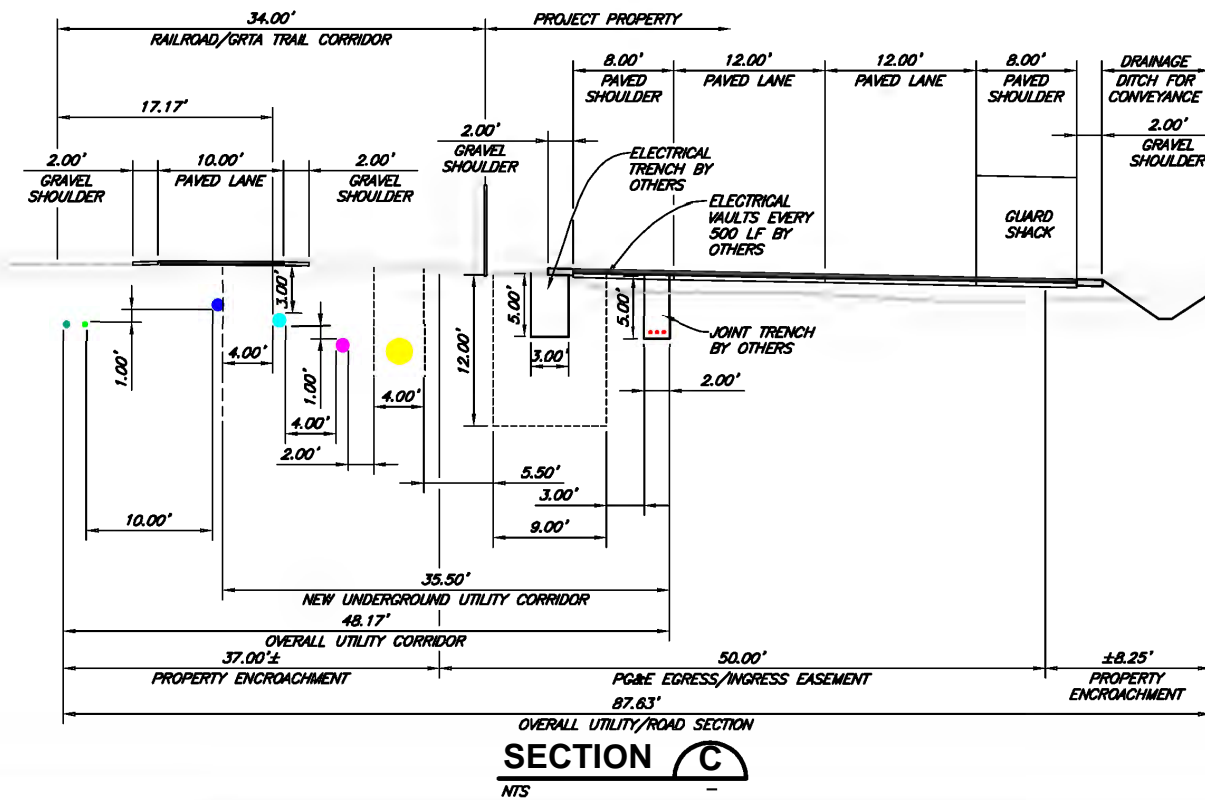
DATE 01/2024
 PROJ. NO. 022054

PRELIMINARY

SAVED: 1/8/2024 4:24 PM JFOSTER, PLOTTED: 1/8/2024 4:35 PM JOHN FOSTER
 C:\Users\jfo222\Documents\Projects\Redwood\Drawings\022054-UTIL-FIG-4A.rvt



PLAN
1"=20'



SECTION C
NTS

ALTERNATIVE 4A UTILITY SECTION DESCRIPTION:

4A - COUNTY ROAD SECTION UTILITIES SHIFTED TO THE WEST WITHIN RAILROAD/GRTA CORRIDOR.

LEGEND

- █ 4" SAMOA SANITARY SEWER - LOCATION AND DEPTH UNKNOWN, DESIGN BY OTHERS
- █ 10" SAMOA WATER - LOCATION AND DEPTH UNKNOWN, DESIGN BY OTHERS
- █ 12" DOMESTIC WATER
- █ 12" INDUSTRIAL WATER
- █ UTILITY RESERVED SPACE
- █ 6" SANITARY SEWER
- █ 36" JOINT TRENCH, DESIGN BY OTHERS
- █ 36" UNDERGROUND ELECTRICAL TRENCH, DESIGN BY OTHERS
- █ 6" NORDIC AQUA FARMS SANITARY SEWER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
- ELECTRICAL VAULT, DESIGNED BY OTHERS
- FENCE



PLAN
NTS

PRELIMINARY

VERIFY SCALES
 1" = 1" ON ORIGINAL DRAWING
 1" = 1" ON THIS SHEET. ADJUST SCALES ACCORDINGLY.

812 W. WABASH AVE.
 EUREKA, CA 95501
 WWW.SHN-ENGR.COM
 707-441-8855

DESIGN	CC	DIR	CDM/JWF	CHK	JSD	APPV	NO.	DATE	REVISION	BY

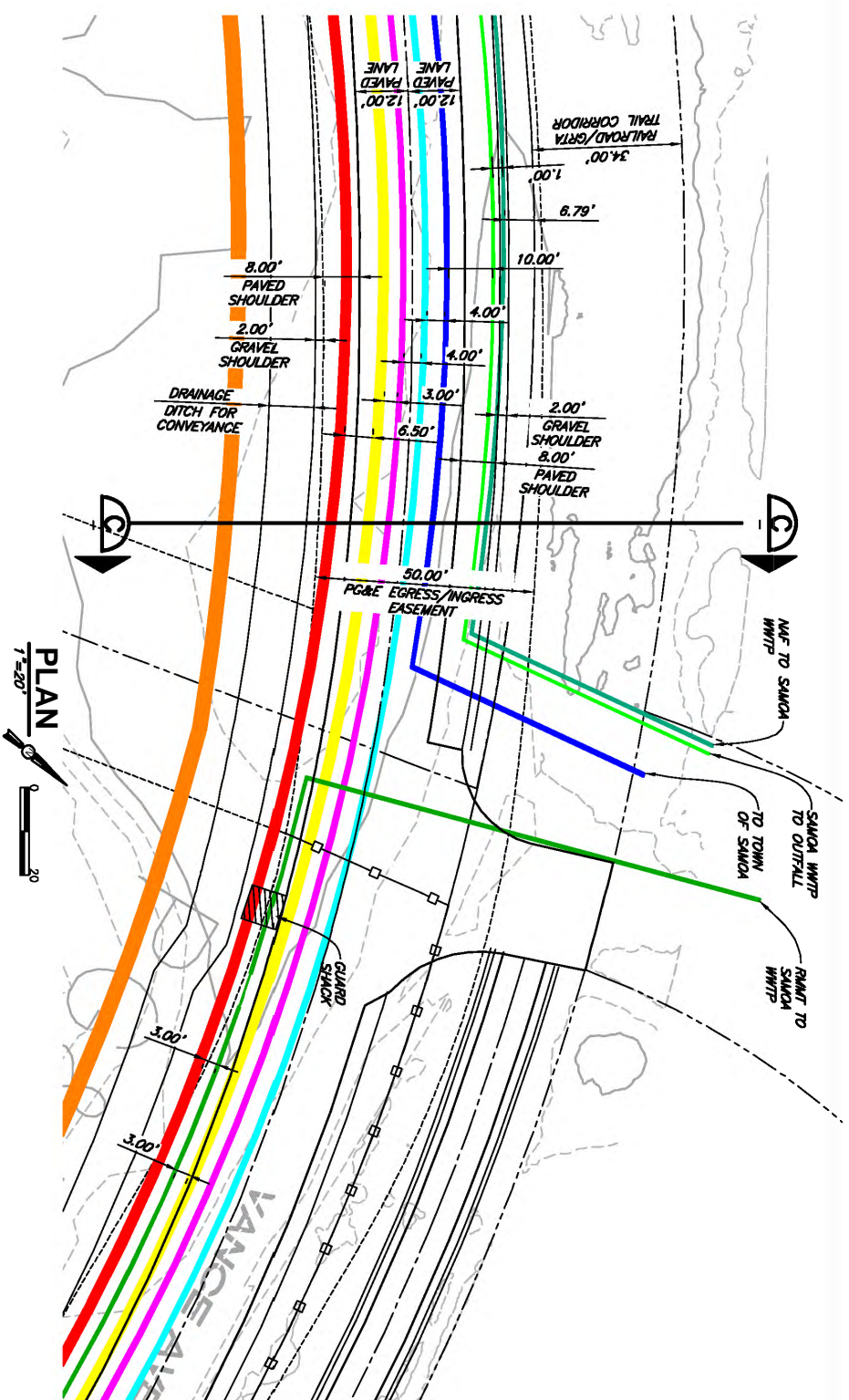
REDWOOD MARINE MULTIPURPOSE TERMINAL
 REPLACEMENT PROJECT
 SAMOA, CALIFORNIA

SITE UTILITY ENLARGED AREA 3

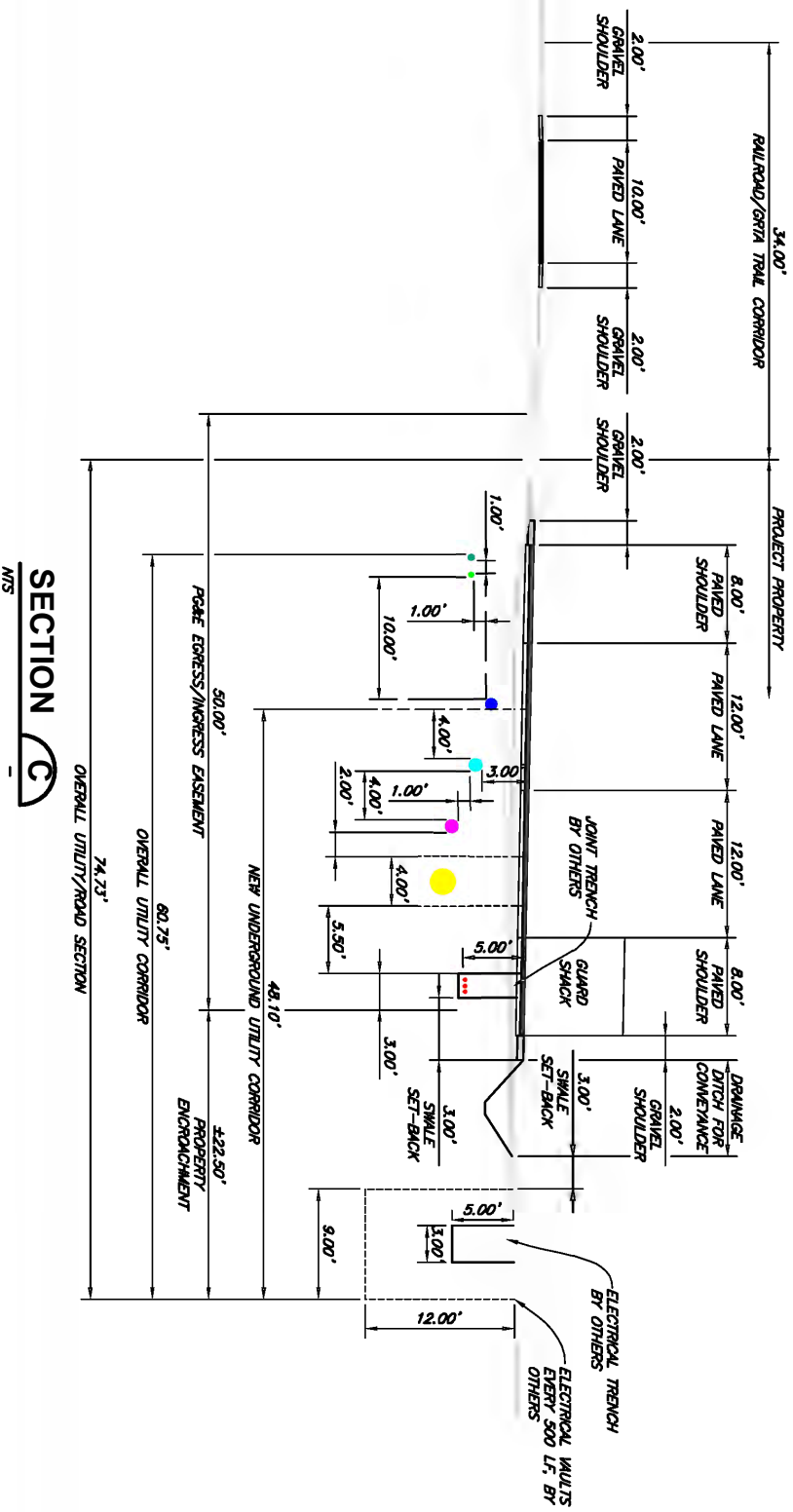
SHEET
FIG 4A

DATE **01/2024**

PROJ. NO.
022054



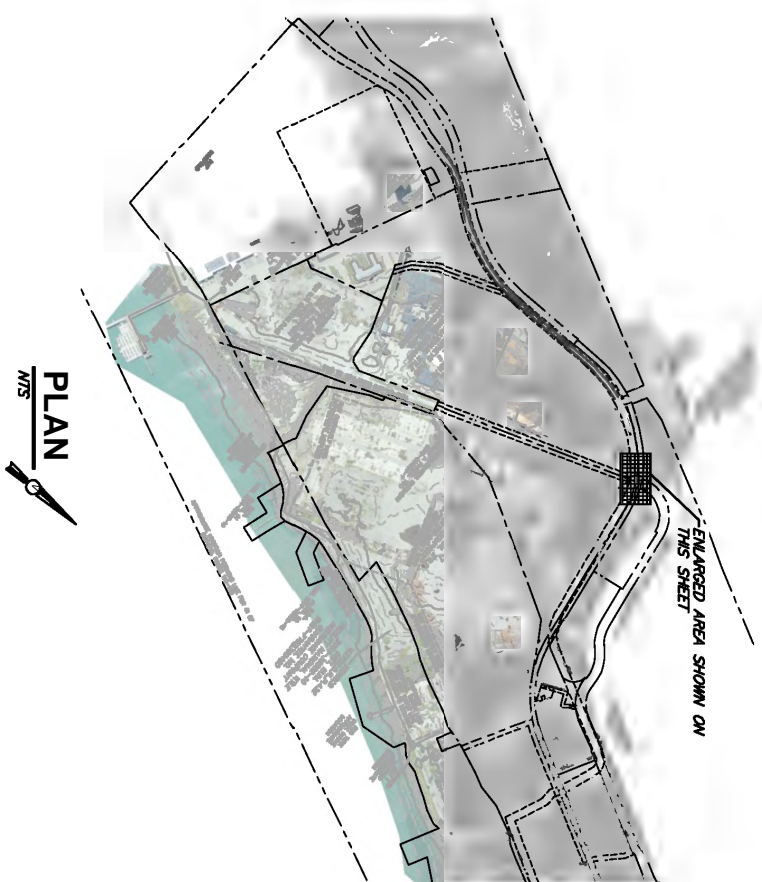
PLAN
 1"=20'



SECTION
 1"=12'

ALTERNATIVE 4B UTILITY SECTION DESCRIPTION:
 4B - COUNTY ROAD SECTION UTILITIES SHIFTED TO THE EAST OUTSIDE OF THE RAILROAD/GRIA CORRIDOR.

- LEGEND**
- 4" SAMOA SANITARY SEWER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
 - 10" SAMOA WATER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
 - 12" DOMESTIC WATER
 - 12" INDUSTRIAL WATER
 - UTILITY RESERVED SPACE
 - 6" SANITARY SEWER
 - 36" JOINT TRENCH, DESIGNED BY OTHERS
 - 36" UNDERGROUND ELECTRICAL TRENCH, DESIGNED BY OTHERS
 - 6" NORDIC AQUA FARMS SANITARY SEWER - LOCATION AND DEPTH UNKNOWN, DESIGNED BY OTHERS
 - ELECTRICAL WALL, DESIGNED BY OTHERS
- FENCE



PLAN
 1"=20'

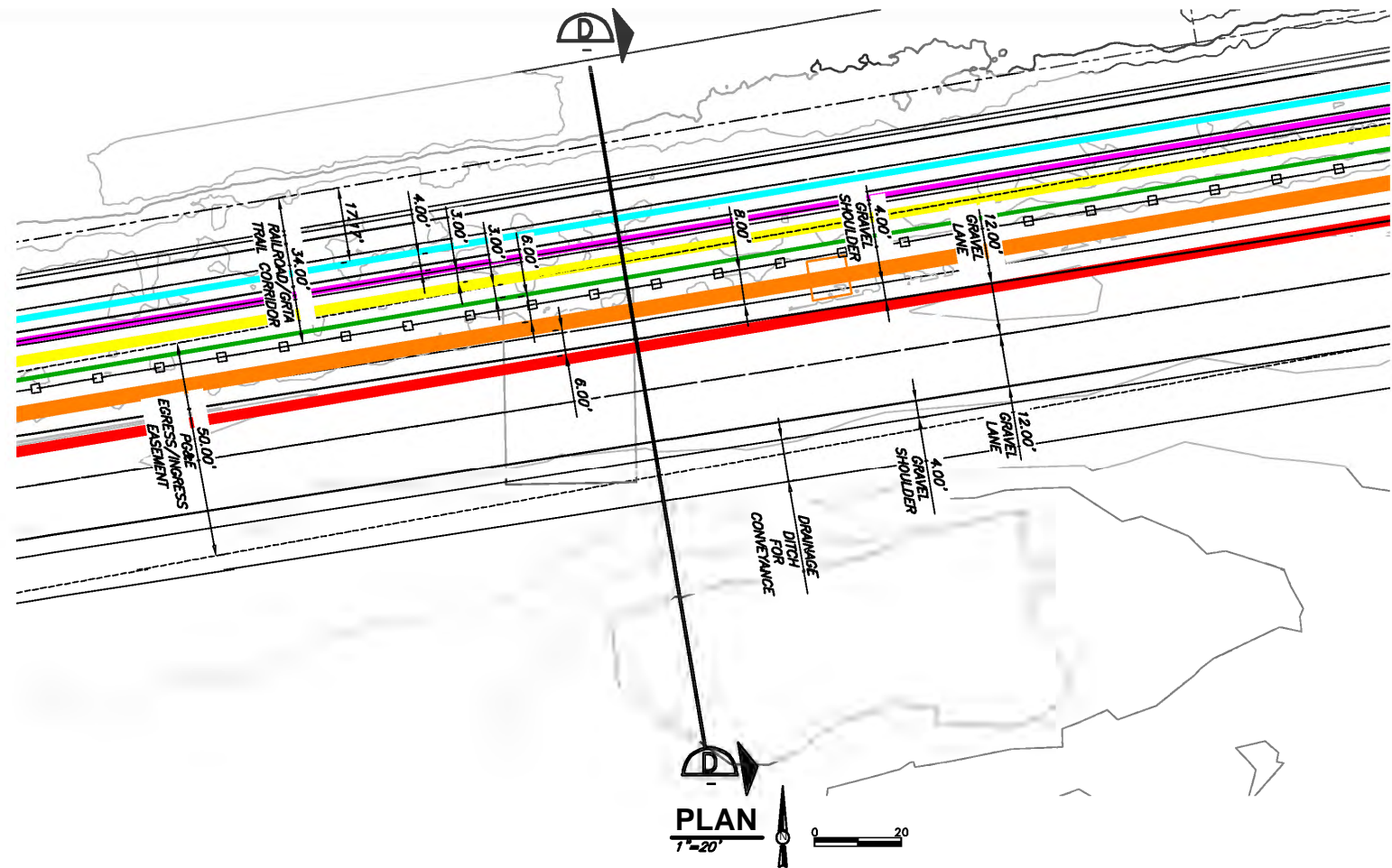
PRELIMINARY

SHEET FIG 4B		DATE 01/2024		PROJ. NO. 022054	
REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT SAMOA, CALIFORNIA					
DESGN CC	DIR COM/JWF	CHK JSO	ARVD	NO.	DATE
SITE UTILITY ENLARGED AREA 3			REVISION	BY	NO.



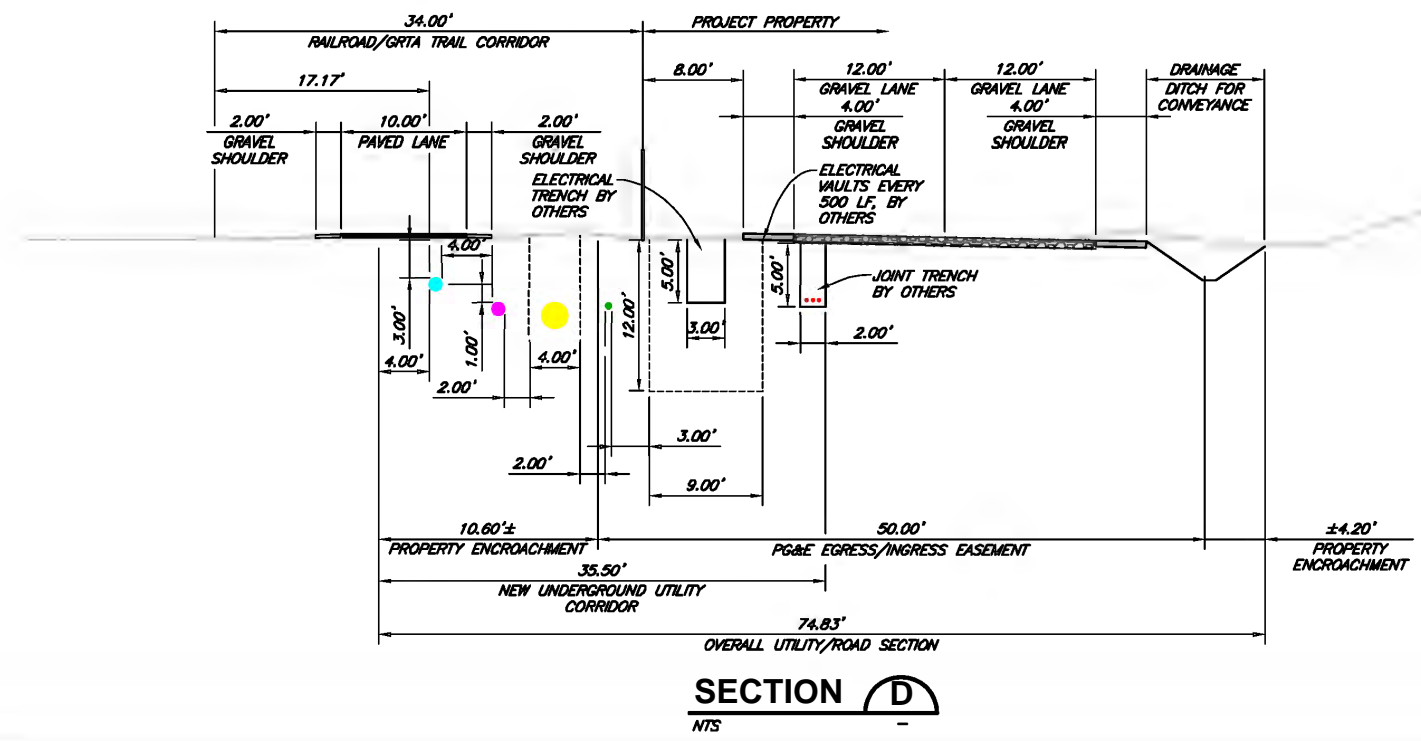
VERIFY SCALES
 BAR IS ONE INCH ON ORIGINAL DRAWING
 0 1"
 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

SAVED: 1/8/2024 4:24 PM JFOSTER, PLOTTED: 1/8/2024 4:37 PM JOHN FOSTER
 C:\Users\jfo223\OneDrive\Documents\Redwood\Drawings\022054-UTIL-FIG-5A-TITLE.dwg



ALTERNATIVE 5A UTILITY SECTION DESCRIPTION:
 5A - DCA ROAD SECTION UTILITIES SHIFTED TO THE WEST WITHIN RAILROAD/GRTA CORRIDOR.

- LEGEND**
- 12" DOMESTIC WATER
 - 12" INDUSTRIAL WATER
 - UTILITY RESERVED SPACE
 - 6" SANITARY SEWER
 - 36" JOINT TRENCH, DESIGNED BY OTHERS
 - 36" UNDERGROUND ELECTRICAL TRENCH, DESIGNED BY OTHERS
 - ELECTRICAL VAULT, DESIGNED BY OTHERS
 - FENCE



VERIFY SCALES
 1" = 1" IS ONE INCH ON ORIGINAL DRAWING
 0 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

812 W. WABASH AVE.
 EUREKA, CA 95501
 WWW.SHN-ENGR.COM
 707-441-8855



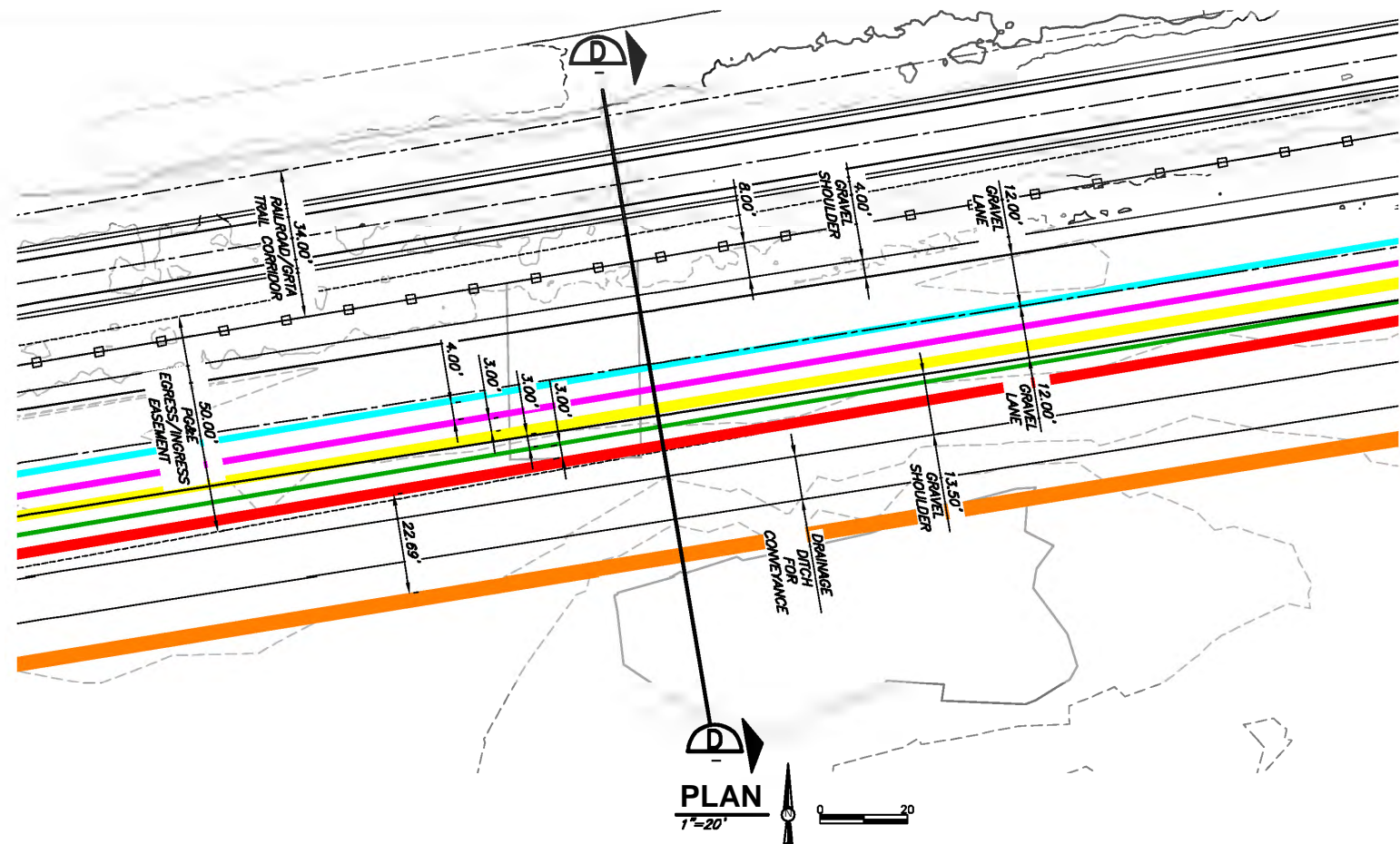
NO.	DATE	REVISION	BY

REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT
 SAMOIA, CALIFORNIA
SITE UTILITY ENLARGED AREA 4

SHEET
FIG 5A
 SEQ
 DATE 01/2024
 PROJ. NO.
 022054

PRELIMINARY

SAVED: 1/8/2024 4:24 PM JFOSTER, PLOTTED: 1/8/2024 4:38 PM JOHN FOSTER
 C:\Users\jfo22371\OneDrive\Documents\Redwood\Drawings\022054-UTIL-FIG-41.dwg

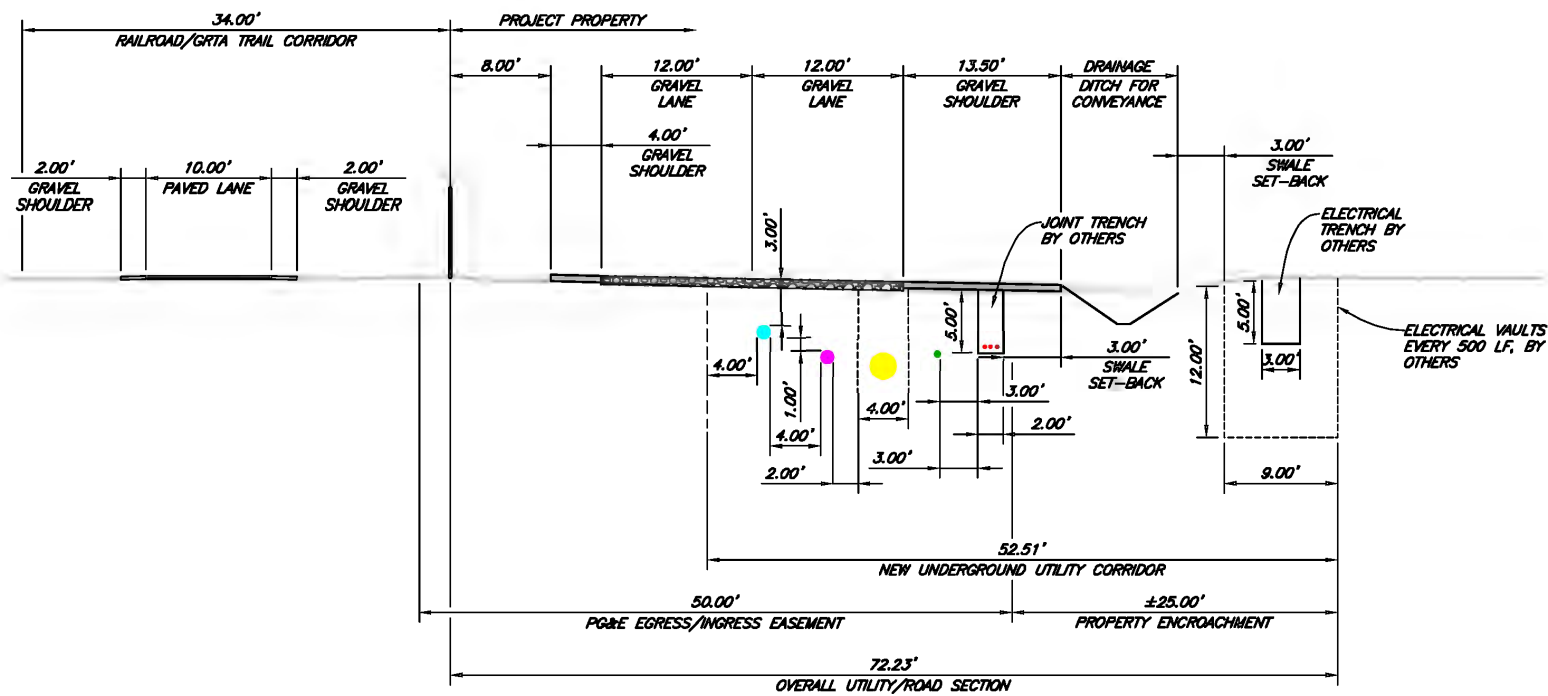


ALTERNATIVE 5B UTILITY SECTION DESCRIPTION:

5B - DGA ROAD SECTION UTILITIES SHIFTED TO THE EAST OUTSIDE OF THE RAILROAD/GRTA CORRIDOR.

LEGEND

- 12" DOMESTIC WATER
- 12" INDUSTRIAL WATER
- UTILITY RESERVED SPACE
- 6" SANITARY SEWER
- 36" JOINT TRENCH, DESIGNED BY OTHERS
- 36" UNDERGROUND ELECTRICAL TRENCH, DESIGNED BY OTHERS
- ELECTRICAL VAULT, DESIGNED BY OTHERS
- FENCE



VERIFY SCALES
 1" = 1" IS ONE INCH ON ORIGINAL DRAWING
 0 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

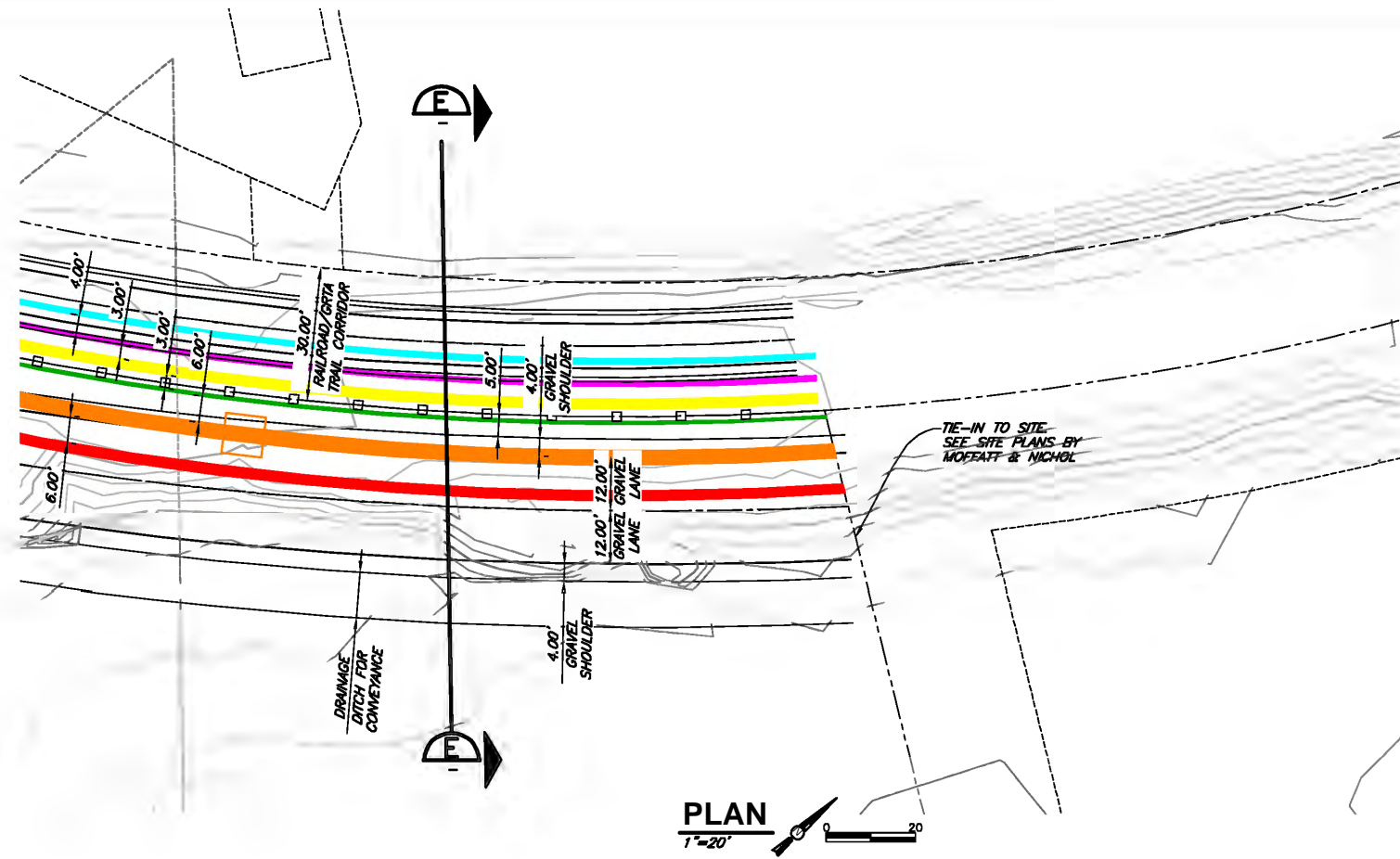
812 W. WABASH AVE.
 EUREKA, CA 95501
 WWW.SHN-ENGR.COM
 707-441-8855



DESIGN	CC	BY
DR	CDM/JWF	REVISION
CHK	JSO	DATE
APP'D		NO.
REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT SAMOIA, CALIFORNIA		
SITE UTILITY ENLARGED AREA 4		
SHEET		
FIG 5B		
DATE 01/2024		
PROJ. NO. 022054		

PRELIMINARY

SAVED: 1/8/2024 4:24 PM JFOSTER, PLOTTED: 1/8/2024 4:40 PM JOHN FOSTER
 C:\Users\jfo2281\OneDrive - Humboldt - RMM\Drawings\022054-UTIL-FIG-ALL.dwg

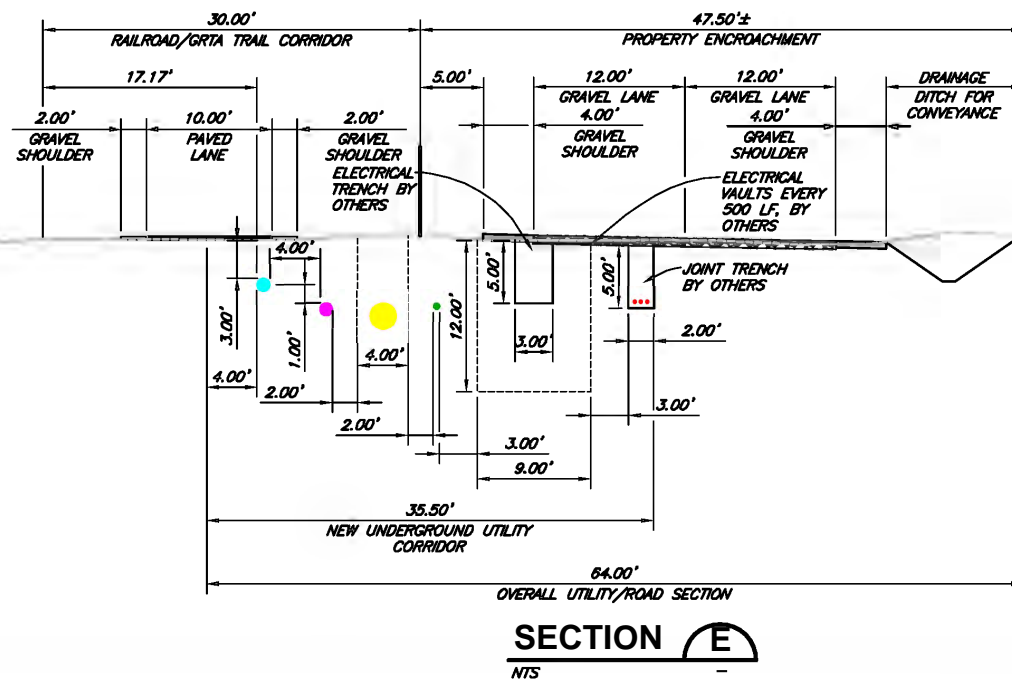


ALTERNATIVE 6A UTILITY SECTION DESCRIPTION:

6A - DGA ROAD SECTION UTILITIES SHIFTED TO THE WEST WITHIN RAILROAD/GRTA CORRIDOR.

LEGEND

- 12" DOMESTIC WATER
- 12" INDUSTRIAL WATER
- UTILITY RESERVED SPACE
- 6" SANITARY SEWER
- 36" JOINT TRENCH, DESIGN BY OTHERS
- 36" UNDERGROUND ELECTRICAL TRENCH, DESIGN BY OTHERS
- ELECTRICAL VAULT, DESIGNED BY OTHERS
- FENCE



PRELIMINARY

VERIFY SCALES
 1" = 1" ORIGINAL DRAWING
 0 IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

812 W. WABASH AVE.
 EUREKA, CA 95501
 WWW.S&M-ENGR.COM
 707-441-8855

S&M

DESIGN	CC	BY
DR	CDM/JWF	
CHK	JSO	
APPV		
NO.	DATE	REVISION

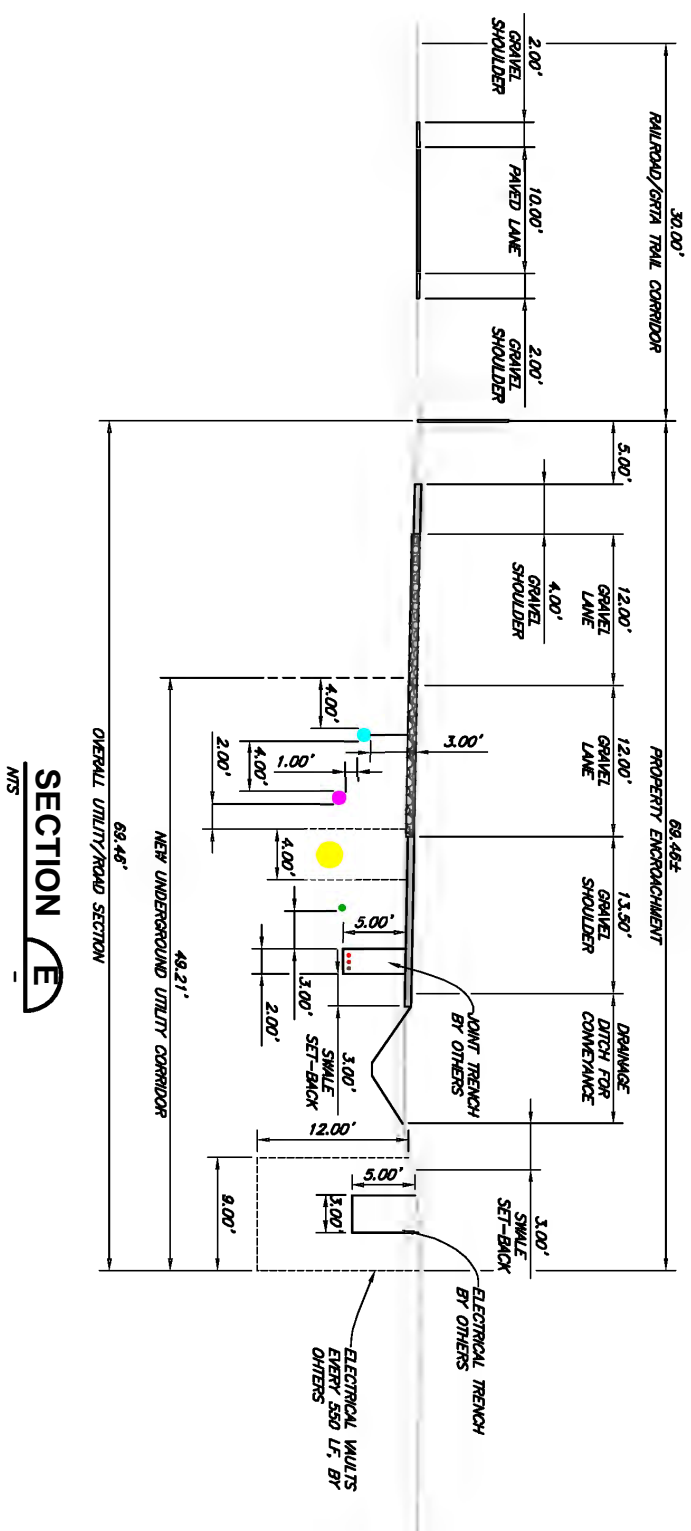
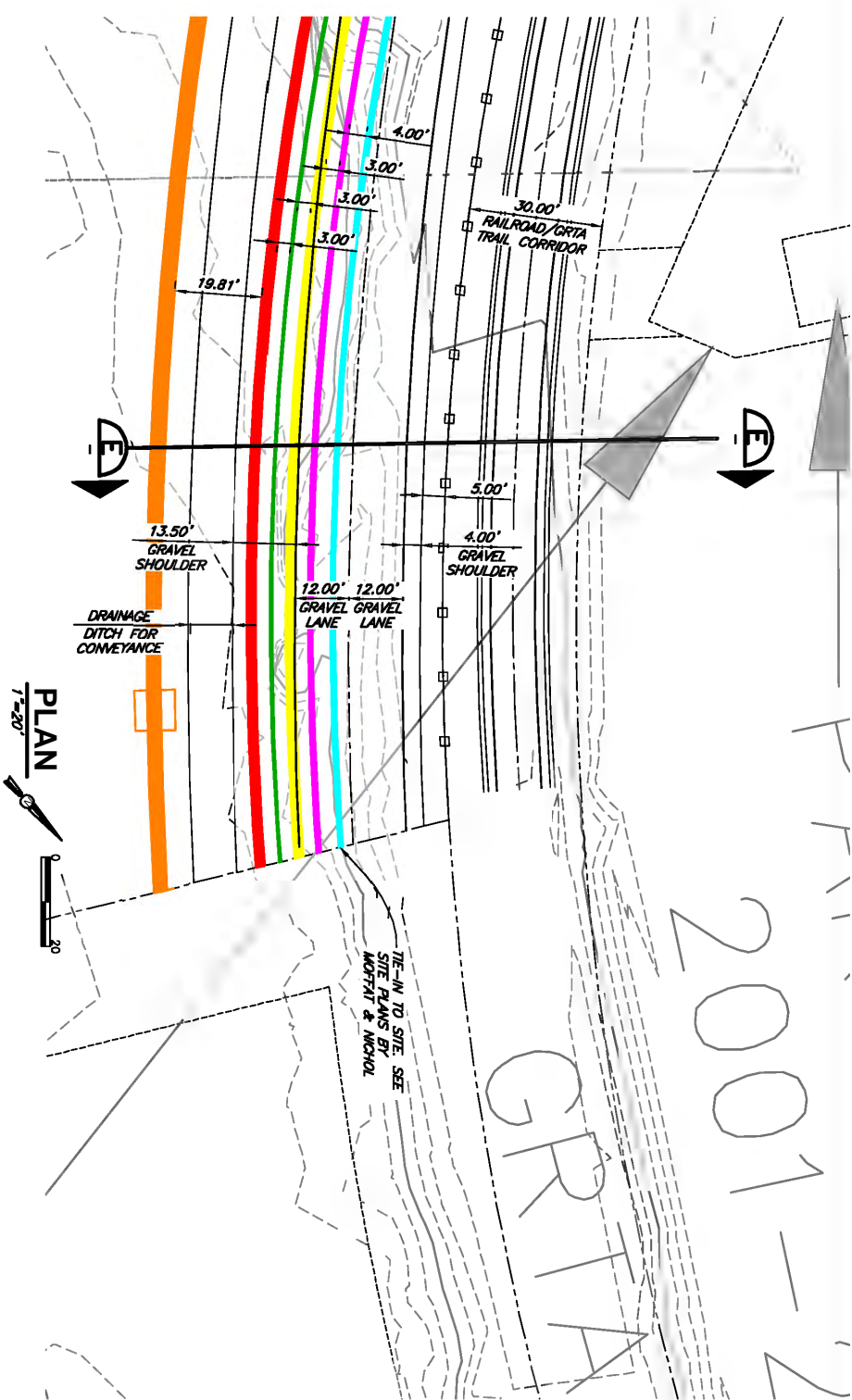
REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT SAMOIA, CALIFORNIA

SITE UTILITY ENLARGED AREA 5

SHEET **FIG 6A**

DATE 01/2024

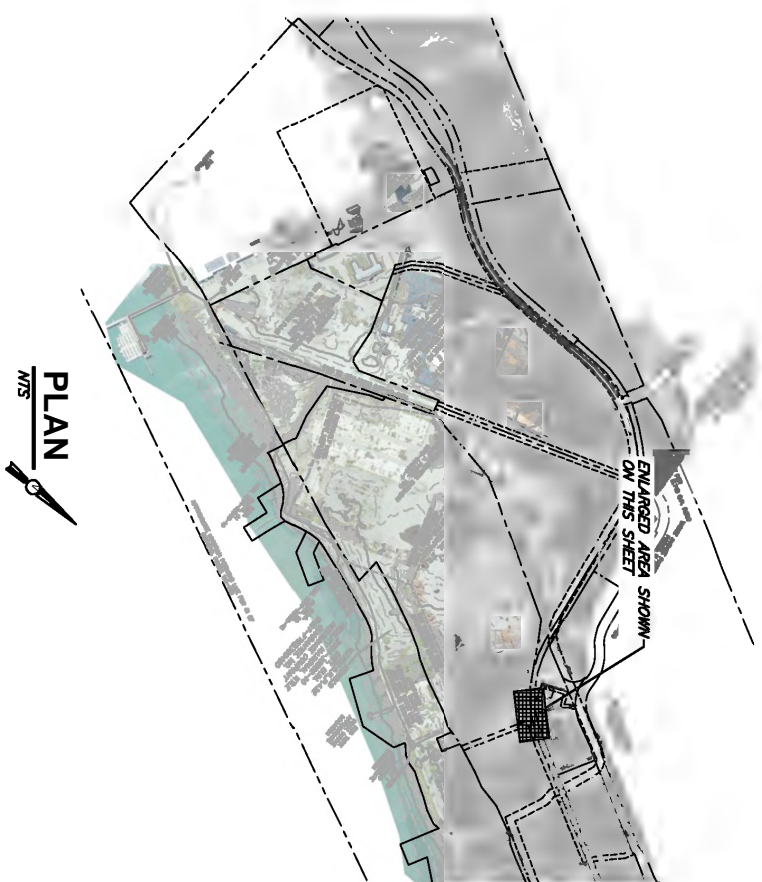
PROJ. NO. 022054



LEGEND

	12" DOMESTIC WATER
	12" INDUSTRIAL WATER
	UTILITY RESERVED SPACE
	6" SANITARY SEWER
	36" JOINT TRENCH, DESIGN BY OTHERS
	36" UNDERGROUND ELECTRICAL TRENCH, DESIGN BY OTHERS
	ELECTRICAL MULTI, DESIGNED BY OTHERS
	FENCE

ALTERNATIVE 6B UTILITY SECTION DESCRIPTION:
 6B - 004 ROAD SECTION UTILITIES SHIFTED TO THE EAST OUTSIDE OF THE RAILROAD/GRTA CORRIDOR

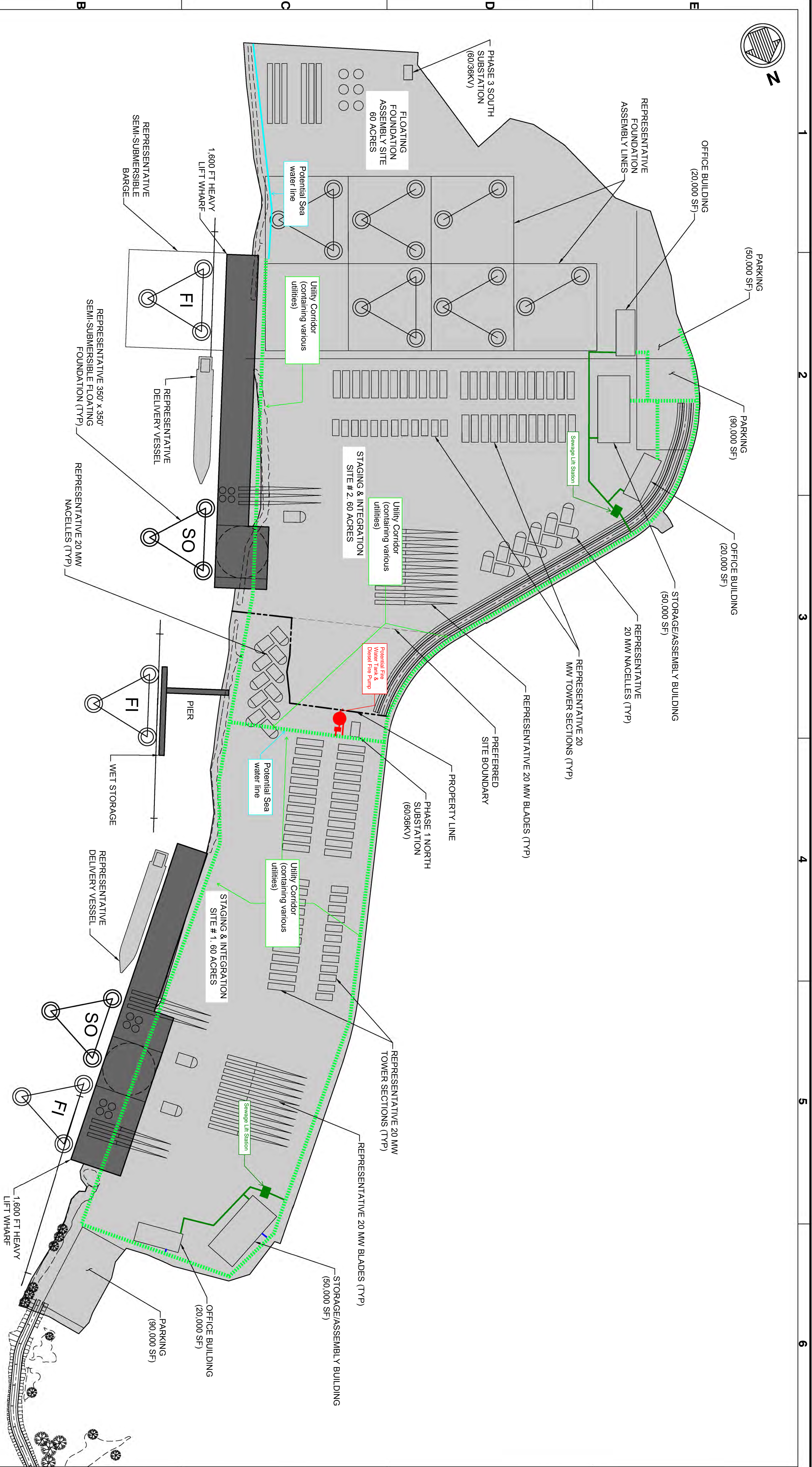
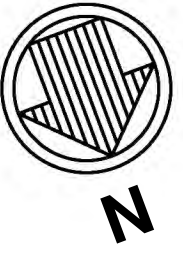


PRELIMINARY

SHEET FIG 6B	REDWOOD MARINE MULTIPURPOSE TERMINAL REPLACEMENT PROJECT SAMOA, CALIFORNIA SITE UTILITY ENLARGED AREA 5	DSGN CC DIR CDN/JWF CHR JSO ARVD	NO. _____ DATE _____ REVISION _____ BY _____		VERIFY SCALES BAR IS ONE INCH ON ORIGINAL DRAWING 0 1"
DATE 01/2024 TRAIL NO. 022054	812 W. WABASH AVE. EUREKA, CA. 95501 WWW.SHN-ENGR.COM 707-441-8855	IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY			

Figure 3

Onsite Utility Routing



FOR CONCEPTUAL DESIGN
 ISSUED: 2023-12-07
 NOT TO BE USED FOR CONSTRUCTION

	1300 CLAY STREET, SUITE 350 OAKLAND, CA 94612
	INSERT SUB-CONSULTANT OR CLIENT LOGO AND INFO HERE

Designed by:	Date:	Rev.
Dwn by: OA	2023-12-07	
Ckt by: MJ	M&N Project No. 212991-03	
Reviewed by: EC	Drawing code:	
Submitted by: MOFFATT & NICHOL	Drawing Scale:	
SUBMITTER'S NAME	MOFFATT & NICHOL	Plot scale: 1:1 (D SHEET)

**REDWOOD MARINE
 MULTIPURPOSE TERMINAL
 REPLACEMENT PROJECT**

CONCEPTUAL SITE USE

Mark	Description	Date	Appr

