

Southern California Regional Rail Authority



METROLINK®

Orange County Transportation Authority



Project Study Report (PSR) for Orange County Maintenance Facility (OCMF)

Prepared by:
STV Incorporated



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Orange County Maintenance Facility (OCMF) Project Project Study Report

January 11, 2019

Prepared by:
STV Incorporated



Approved:  _____

Justin Fornelli, PE

Director, Engineering & Construction

This project study report has been prepared under the direction of the following registered civil engineer. The registered engineer attests to the technical information contained herein and the engineering data upon which recommendations, conclusions, and decisions are based.

Andrew W. Sokol
REGISTERED CIVIL ENGINEER

1/11/2019
DATE



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ABBREVIATIONS / ACRONYMS

| | |
|---------|--|
| ADA | Americans with Disabilities Act |
| BNSF | BNSF Railway |
| CA | California |
| CEQA | California Environmental Quality Act |
| CHSRA | California High Speed Rail Authority |
| CMF | Central Maintenance Facility |
| CPUC | California Public Utilities Commission |
| DMU | Diesel Multiple Unit |
| DON | Department of Navy |
| EMF | Eastern Maintenance Facility |
| EMU | Electric Multiple Unit |
| ESA | Environmental Site Assessment |
| HSR | High Speed Rail |
| IEOC | Inland Empire Orange County |
| IRWD | Irvine Ranch Water District |
| LAUS | Los Angeles Union Station |
| MCAS | Marine Corps Air Station |
| MNWD | Moulton Niguel Water District |
| MP | Mile Post |
| MSE | Mechanically Stabilized Earth |
| MT | Main Track |
| MUTCD | Manual of Uniform Traffic Control Devices |
| NAVFAC | Naval Facilities Engineering Command |
| NCTD | North County Transportation District |
| NEPA | National Environmental Policy Act |
| NDS | National Design Specification |
| OC | Orange County |
| OCFCD | Orange County Flood Control District |
| OCMF | Orange County Maintenance Facility |
| OCS | Overhead Contact System |
| OCTA | Orange County Transportation Authority |
| PSR | Project Study Report |
| ROW | Right-Of-Way |
| SARWQCB | Santa Ana Regional Water Quality Control Board |
| SCORE | Southern California Optimized Rail Expansion |
| SCRRA | Southern California Regional Rail Authority |
| STV | STV Incorporated |
| SUSMP | Standard Urban Stormwater Mitigation Plan |
| S&I | Service and Inspection |
| TBD | To Be Determined |
| TF | Track Feet |
| TIRCP | Transit and Intercity Rail Capital Program |

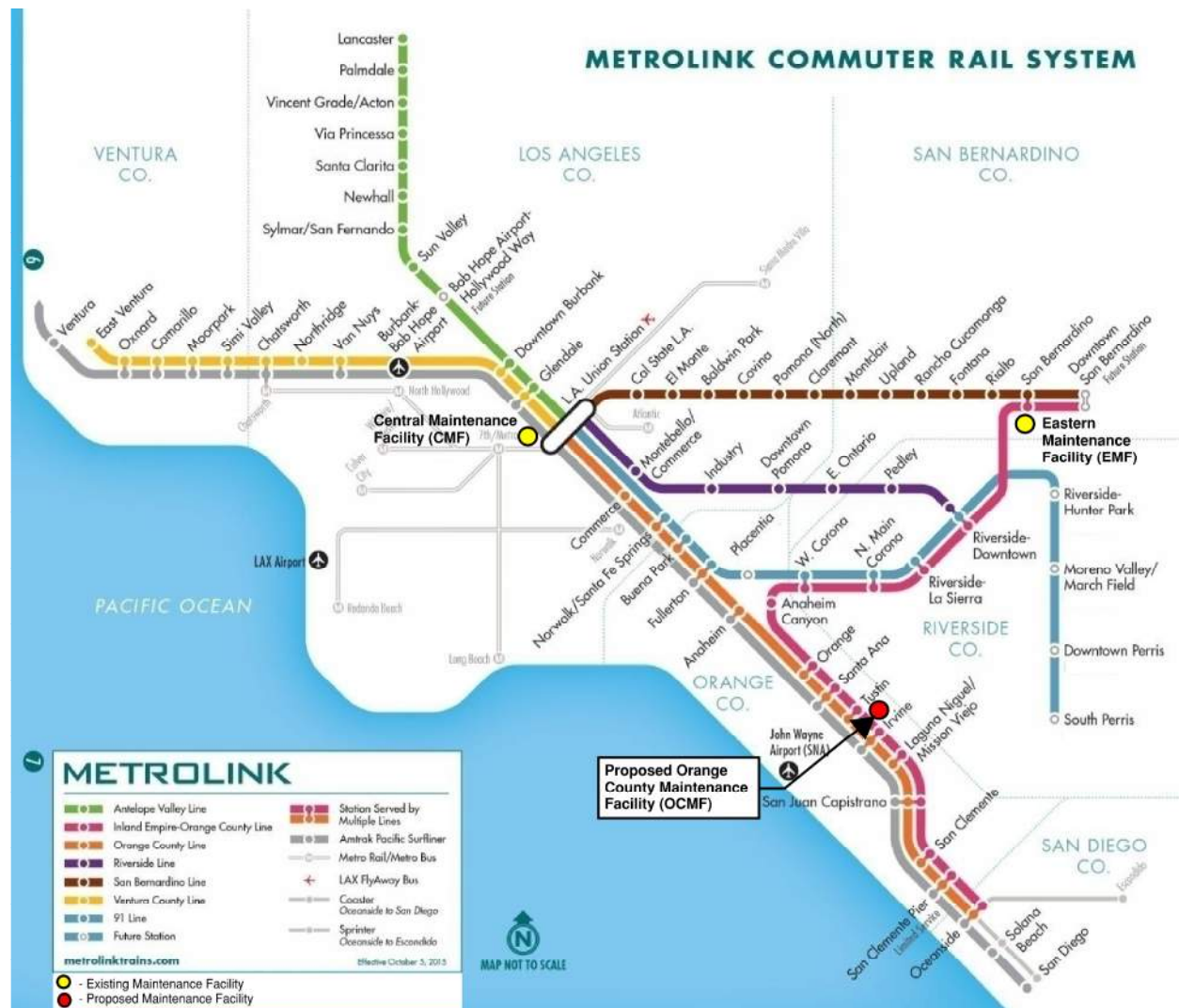
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1. INTRODUCTION

1.1. PROJECT DESCRIPTION

The Southern California Regional Rail Authority (SCRRRA) in cooperation with the Orange County Transportation Authority (OCTA) proposes a new Orange County Maintenance Facility (OCMF), which will be located in Orange County in the City of Irvine, California.

FIGURE 1: METROLINK COMMUTER RAIL SYSTEM MAP



Source: SCRRRA, 2018

This Project Study Report (PSR) provides a summary of operational need, evaluation of the proposed site, and the planned implementation of the project in two (2) phases. Phase 1 will include storage tracks, fueling, sanding, routine inspection, service and train wash facilities, and train storage tracks with toilet dump stations. Phase 1 would have an overall capacity to service and store a fleet of up to 15 8-car train consists. Phase 2 represents final buildout of the facility,

adding a vehicle maintenance shop and a utility building and material and equipment storage facilities. The shop would include limited repair capability; however, heavy overhaul activities for the entire Metrolink fleet would still be performed at Central Maintenance Facility (CMF) in Los Angeles as is currently done. Both phases are planned to be completed by the year 2028. The OCMF has also been identified as one of the key projects in Metrolink’s Southern California Optimized Rail Expansion (SCORE) program.

This PSR will document the proposed site layout, determine the placement of major facility components, demonstrate the concept design supports the operating needs of the SCRRRA fleet, and confirm that the equipment can cycle through the facility without fouling the main tracks, and enter/exit the yard through two (2) outlets; one on each end of the property. It will also identify the anticipated environmental permitting process (by attachment of separate environmental document prepared by OCTA) and establish a conceptual cost estimate for each of the two (2) phases of build-out.

1.2.SITE DESCRIPTION

The OCMF will be located on a 21.3 Acre parcel owned by OCTA that is adjacent to Marine Way and located along the Orange Subdivision between mileposts 183.50 and 184.00 in the City of Irvine, California. The property is located directly northeast of the existing railroad tracks and adjacent to Orange County’s Great Park, see Figure 2, Photo 1, and Photo 2. The existing Metrolink Irvine Station is about a mile southeast of the proposed project location.

FIGURE 2: PROJECT LOCATION



Source: Google Maps, 2018

Directions in this report will be rough geographic directions with CA-133 assumed as the north end of the site with the existing rail ROW to the west.

PHOTO 1: SITE LOCATION LOOKING SOUTHEAST FROM TOLL ROAD CA-133 OVERPASS



Source: Google Maps, 2018

PHOTO 2: SITE LOCATION LOOKING SOUTH FROM MARINE WAY/RIDGE VALLEY INTERSECTION



Source: Google Maps, 2018

2. BACKGROUND

Existing Metrolink maintenance facilities are at full capacity and there is a need to perform maintenance on locomotives and rail cars to comply with safety and operations standards. Since a significant portion of the fleet will be operating in Orange County, a maintenance facility located along the Metrolink route through Orange County would be the optimal location as it would reduce operating costs by limiting non-revenue moves to the existing SCRRRA storage and maintenance facilities in the cities of Los Angeles and San Bernardino. The proposed maintenance facility will provide space and equipment to inspect, clean, and maintain cars and locomotives on a regular and efficient basis. Much of the inspection and maintenance activity is federally mandated and must be performed at specific intervals.

The OCMF will include train storage tracks, locomotive and car service platforms, pits and platforms for inspection and maintenance, and a service building with overhead cranes. Service platforms will include facilities for inspection, fueling and sanding, toilet service, interior car cleaning, and a train washer. Additional facility components will include office space, welfare spaces for crews and facility staff, parts storage and management, water treatment, parking access roads, and security. Connection tracks between the various service areas, storage locations, and the main tracks will be provided to assure optimal operational flexibility.

Prior to development of the OCMF, Metrolink plans to build a 1,000-foot long single-ended storage track for immediate use and to fence the perimeter of the site.

3. PURPOSE AND NEED

3.1. PURPOSE

The purpose of the project is to meet the rail vehicle servicing and storage needs to accommodate current operations and any planned increases in operating service levels and fleet size expansions. The project will accommodate capacity and functionality for an equipment maintenance and storage facility in Irvine, California that will help meet expanded operational needs when levels of services are proposed to increase in the future.

3.2. NEED

The project is needed to support rail service in Southern California – both by allowing better utilization of Metrolink’s existing fleet of rail vehicles and by supporting possible fleet expansion. This takes two main forms, which coincide with the Project’s two phased implementation approach.

Phase 1: Increasing service levels by getting more service out of the existing fleet

The non-shop servicing capabilities (i.e. routine inspection, cleaning, fueling and sanding) provided by Phase 1 of OCMF will allow trains to cycle through Metrolink’s Central Maintenance Facility (CMF) in Los Angeles less frequently – only for shop-related activities.

Servicing trains overnight at OCMF will allow some trains to operate back and forth all day without needing to enter CMF for midday servicing (light cleaning, fueling and sanding). This would provide for increased midday (and evening) service capacity that could be used to increase service on other Lines, such as Ventura County or Antelope Valley Lines. For example, some Ventura County Line trains that currently need to go to CMF for their midday service, could be diverted onto the Orange County Line and have their midday servicing done at OCMF. This would enhance the capability to provide more reverse-peak service on the Orange County Line in the process.

Phase 2: Increasing service levels by expanding the fleet

Adding shop facilities at OCMF in Phase 2 will allow Metrolink to add additional trains to its fleet. CMF is at or very near to maximum shop capacity and adding shop capacity is critical to be able to maintain and service the growing fleet to achieve future service goals.

4. RAILROAD OPERATIONAL ANALYSIS ASSESSMENT

Currently Metrolink operates three (3) maintenance facilities across its service area (see map in Figure 1). The CMF is located on the east bank of the Los Angeles River near the intersection of the 5 and 110 Freeways, just south of the former Southern Pacific Taylor Yard and is the only facility that is currently capable of performing heavy overhaul and preventive maintenance (i.e. three (3) month, six (6) month, one (1) year and four (4) year preventive maintenance cycles) for locomotives and rail cars. The Eastern Maintenance Facility (EMF) is located in San Bernardino and provides daily overnight servicing only for San Bernardino Line trains. Metrolink trains are also serviced and stored at NCTD's Stuart Mesa Facility, which is located between San Clemente Pier and Oceanside at the southwest end of Camp Pendleton.

Metrolink currently has a fleet of 41 locomotives and 225 rail cars that all receive their required preventive maintenance cycles at CMF. Table 1 shows fleet size, the capacity of CMF in terms of shop spots available to perform servicing, and the need for servicing, based on the existing fleet. There are two (2) pits at CMF that can typically accommodate two (2) locomotives each for a total of four (4) spots for locomotives, while there are 18 spots available for servicing of coaches, including 14 spots provided by the two (2) – full train length preventive maintenance (or sometimes referred to as progressive maintenance) tracks plus four additional (4) coach spots. Finally, there is one drop table spot and one-wheel truing spot that are not set up to be used for preventive maintenance.

Based on the “Current Shop Spots” calculations provided in Attachment I, CMF requires 5 locomotive spots and 16 coach spots (not counting wheel truing and drop table) to service the entire fleet. Based on these numbers, CMF appears to be currently operating at 125% capacity for locomotive preventive maintenance/repair spots, and at 88% capacity for coach preventive maintenance/repair spots.

TABLE 1: CURRENT CMF SERVICING CAPACITY AND NEEDS

| Equipment Type | Current Metrolink Fleet | Current CMF Service Capacity (Spots) | Current Service Needs (Spots) | Current Operating Level (100% = Full Capacity) |
|-----------------------|--------------------------------|---|--------------------------------------|---|
| Locomotives | 41 | 4 | 5 | 125% |
| Coaches | 225 | 18 | 16 | 88% |

While overcapacity, the locomotive scenario at CMF works at present due to one or more of the following factors:

- Use of the drop table spot, when available, for overflow work
- Use of coach spots, when available, for overflow work
- Some lower-level preventive maintenance activities taking place outdoors (resulting in ongoing potential noise issues)
- Presumably there is some spare ratio for the locomotives, meaning some are on standby and not in active service (thus the actual demand for maintenance and repair is slightly less than that for the full fleet at any given time)

In addition to the routine preventive maintenance, unscheduled repairs must also be accommodated within these same servicing spots, which results in occasional overcapacity conditions for coaches. These numbers show that there is effectively no surplus capacity available at CMF to handle servicing needs for any expansion in Metrolink operations.

The CMF, which performs midday servicing of trains (including light cleaning and fueling) in addition to routine inspection and preventive maintenance as well as heavy overhaul and repairs, is currently near or at full capacity. This includes the aforementioned maintenance cycles. This full capacity status will impact the ability to provide the necessary train servicing for planned service expansion of various Metrolink lines throughout the system. By transferring a portion of the overall fleet’s daily and routine preventive maintenance inspections and servicing operations from CMF to the proposed OCMF, capacity to help support expanded service levels will be freed up at CMF. The Orange County Line has the highest ridership within the Metrolink system and is projected to increase over time. Therefore, a maintenance facility to serve the Orange County area with sufficient storage and servicing capabilities for both locomotives and rail cars is critical to controlling operating costs. The Orange County Line continues to grow, having recently surpassed the San Bernardino Line ridership.

The San Bernardino Line previously had the highest ridership in the system which helped identify the need for the Eastern Maintenance Facility (EMF) that was opened to service in 2010. The EMF predominantly provides overnight servicing of trains that end their revenue service runs near EMF. This daily overnight servicing of trains at EMF eliminates the need for these trains to be serviced at midday at CMF, effectively freeing up that servicing capacity at CMF.

The OCMF would provide the same services and more. By providing a facility in Orange County to perform daily cleaning and fueling of trains, those trains would no longer need to have their daily servicing performed at CMF; thereby freeing up capacity at CMF for use by other Lines, while expanding capacity there for services only the CMF can perform. Like the EMF, the OCMF (in Phase 1) would provide overnight servicing for trains ending their day of revenue operations in the vicinity (most likely on the Orange County Line). In addition to overnight servicing, the OCMF also has good potential to perform midday servicing of trains because of the greater levels of reverse peak operations on lines feeding into the OCMF compared with the EMF. Phase 2 would provide further benefit by allowing most of the preventive maintenance cycles to be transferred from CMF to OCMF.

There are ongoing discussions around reshuffling equipment across maintenance facilities to support service improvements. One discussion is to reduce equipment sets at Stuart Mesa and transfer it to OCMF. However, there are also service goals that would require Metrolink to continue to use Stuart Mesa. The Oceanside to Orange County commuter market is a fairly strong market and there is not a strong business case for abandoning it. Therefore, from an operations and maintenance perspective, the Stuart Mesa facility provides a valuable function in servicing and storing Metrolink trains operating to Oceanside, by eliminating nonrevenue runs for service and storage.

To summarize, the key benefit of the OCMF is to increase servicing capacities for Metrolink such that CMF can dedicate more of its capacity to other lines in the system as needed.

Both phases of the proposed facility development are planned to be completed by the year 2028.

While comprehensive analysis of future planned rail operations or fleet sizes is still pending, the additional trains needed at the proposed OCMF to support possible service levels in 2028 are anticipated to be 13 train cycles plus 2 spares. That is, 13 train sets would operate out of OCMF each morning, with 2 sets worth of equipment kept available as spares (15%).

The number of equipment sets required to operate a balanced bidirectional service on a line is equal to the complete circuit time of a roundtrip divided by the service headway, rounded up. If service is not balanced between directions, then additional equipment is required. As an example: hourly bidirectional service between Laguna Niguel and LA Union Station has a circuit time of about 4 hours, requiring 4 sets of equipment.

TABLE 2: CIRCUIT TIMES AND TRAINSET REQUIREMENTS

| Line | Frequency / Headways | Circuit Time | Trainsets Req'd |
|---------------------|----------------------|--------------|-----------------|
| OC Line (LGN-LAUS) | Hourly | 4:00 | 4 |
| | Every 30 Minutes | 3:30 | 7 |
| | Every 15 Minutes | 3:15 | 13 |
| IEOC Line (SBD-LGN) | Hourly | 5:00 | 5 |
| | Every 30 Minutes | 5:00 | 10 |

Conceptual equipment cycles were produced for the proposed conceptual schedules described in SCORE and with trains running every 15 minutes on the OC Line and every 30 minutes on the IEOC Line. With these cycles, 13 sets would need to operate out of OCMF each morning, with the balance coming from other layover or maintenance facilities. A smaller amount could be serviced in the midday at OCMF. This would reduce the number of trainsets that need to go into CMF for servicing each day by between 4 and 9 equipment sets, which would free up capacity at CMF for additional trains on other lines by removing between 16% and 40% of the 25 sets that cycle through CMF per day. Actual numbers will vary depending on the infrastructure available and the operating plan in effect at any given time.

Given the constraints of the site, the yard will serve and store up to 15 consists at a time. The analyses above indicate that this should be sufficient to support reasonably aggressive service expansion.

Consist length will allow up to eight (8) coaches and one (1) or two (2) locomotives, which represents the current maximum train length contemplated by SCRRRA, a length not easily exceeded as it relates to the length of station platforms throughout the system. While some of Metrolink’s older stations have shorter platforms, its current design standards call for these lengths to be accommodated. Metrolink currently operates a maximum consist length of six coaches plus locomotive(s) on the OC and IEOC Lines and is already seeing standing passengers on some of these trains. As ridership continues to grow, longer consists may be necessary to accommodate ridership demand.

Thus, all storage tracks should be designed to accommodate eight (8) coaches. Based on site constraints identified in the conceptual analysis, half of the storage tracks can be set up for 8 coaches plus two (2) locomotives, and the other half for eight (8) coaches plus one (1) locomotive. Each coach is 85 feet in length, while locomotives vary from 58-feet to 69-feet in length. For purposes of yard layout, a minimum clear length of 750-feet (one (1) locomotive and 8 coaches) was used for the storage tracks in the north half of the yard, and 820-feet (2 locomotives plus 8 coaches) in the south half of the yard.

The above operational needs can be broken into two (2) categories: short-term and longer-term needs. These differing needs will be addressed by implementing the improvements in a two (2) phased approach.

5. EXISTING DEFICIENCIES

Metrolink's service levels are proposed to increase along all operating lines in the next several years. This increased service requires additional capacity to perform both daily servicing (cleaning and fueling), as well as regular preventive maintenance cycles. The Central Maintenance Facility (CMF) in Los Angeles is currently operating at or above capacity and cannot be easily expanded. The EMF, while expandable, would require many non-revenue miles to service trains and access is along an already congested corridor. The Stuart Mesa Maintenance Facility is at capacity and not able to accommodate additional trainsets. Like the CMF, Stuart Mesa is not easily expandable.

6. RAIL CORRIDOR AND SYSTEM COORDINATION

The proposed OCMF alternatives align with the operating regimen of the SCRRA fleet. The alternatives developed accommodate the short-term and long-term planning of the Metrolink commuter services allowing for SCRRA rail service expansion.

7. YARD LAYOUT AND PHASED IMPLEMENTATION

The project is envisioned to be developed in two (2) phases. Several initial concepts were developed in consultation with SCRRA Operations staff culminating in the selection of the preferred layout that is depicted in the attached conceptual plans.

7.1.PHASE 1

Phase 1 focuses on developing facilities needed for the storage and routine cleaning, inspection and servicing of all anticipated trains. Phase 1 layout situates the train wash, fueling/sanding and service and inspection tracks on the two tracks with the greatest tangent (straight) length, which are located nearest the railroad ROW. It is important to ensure the tangent tracks can support a second fueling/sanding facility on the other end of the service and inspection platform so trainsets with locomotives on either end can be serviced.

All storage tracks and appurtenant features (air, water, head end power, and toilet dump facilities) would be constructed. The storage tracks would be built near the middle of the site east of the service and inspection tracks. Refer to conceptual plans included as Attachment C for additional information.

A runaround track is provided between the service and inspection tracks and storage tracks. Additionally, two (2) temporary stub-ended set out tracks would be provided in the Phase 1 layout to occupy the approach footprints to the two future shop tracks: one (1) at the north and one (1) at the south end of the yard. These set out tracks would be converted to shop

access tracks in Phase 2 and therefore no longer available as set out tracks. A new set out track will then be provided as part of Phase 2.

Construction access to the site would be through the existing dirt road(s) (see Photo 3 and Photo 4) or via the railroad ROW until the paved entrance road is completed.

PHOTO 3: EXISTING LOCATION OF PROPOSED NORTH ENTRANCE ROAD



Source: STV, 2018

PHOTO 4: EXISTING LOCATION OF PROPOSED SOUTH ENTRANCE ROAD



Source: STV, 2018

A transportation building is also included in Phase 1. This building, along with requisite parking and service roads, would serve as welfare space (restrooms, lockers break rooms, etc.) for crews and service technicians, office space for management, and housing for communications systems.

7.2.PHASE 2

Phase 2 completes the full build out of the yard. It will include development of the maintenance shop building and materials and equipment storage facilities along the eastern part of the site (furthest from the existing railroad ROW). The shop will have capabilities to perform regular three (3) month, six (6) month, one (1) year and four (4) year preventive maintenance cycles for trainsets.

8. RIGHT-OF-WAY

8.1.FACILITY RIGHT-OF-WAY

OCTA owns the 21.3-acre property in the City of Irvine, which is located about a mile north of the existing Irvine Metrolink Station. The property is bound by the existing SCRRRA Orange Subdivision ROW to the west. To the east, it is bound by County-owned land. A mixed-use development for this adjacent 100-acre County property is currently in the environmental approval process, though it is not clear when or if the development project will move forward. Bee Canyon Channel is on the southern property line and a NAVFAC (Naval Facilities Engineering Command) maintained ground water pumping structure and associated access road comprise the northern boundary elements. Wagner Engineering and Surveying performed a property research largely based on the ALTA/SCSM Land Title Survey Map dated March 2014, and developed property lines on the aerial base map, which they also produced for this study. The site property boundaries are shown on the attached conceptual plans (Attachment C).

9. TEMPORARY CONSTRUCTION EASEMENTS

There is a City-owned street ROW located along the north edge of the site that joins to Marine Way. This undeveloped ROW could be used to access the site during construction, and no temporary construction easements for access are anticipated.

9.1.UTILITY EASEMENT/LICENSE IMPACTS

The Irvine Ranch Water District (IRWD) has a 20-foot-wide access easement that runs along the west edge of the site, near the existing railroad ROW, generally adjacent to a reclaimed water line that runs most of the length of the site. This easement falls near the proposed outer circulation road. There are reclaimed water lines and related facilities that have been abandoned in place which conflict with the proposed tracks and access road. The reclaimed water line and facilities can be demolished and removed. IRWD indicated that they have no active utilities within the site. Therefore, OCTA is pursuing removal of the 20-foot-wide access easement with IRWD.

Southern California Gas Company has a 10-foot-wide high-pressure gas transmission line easement running along the east side of the railroad ROW adjacent to the project site, with a 30" diameter gas line running approximately along the center of the easement. At a minimum,

this gas line easement will need to be crossed twice to construct the lead tracks coming into the OCMF yard at the north and south ends.

It is anticipated that new utilities serving the facility, including water, fire water, sanitary sewer, power and natural gas, will be fed from the north end of the site, along the proposed access road that joins Marine Way. Water, power and gas are available along Marine Way. There is an existing sanitary sewer manhole in the footprint of the proposed north access road that could be connected to with the new sanitary system. Refer to the Utilities Matrix included in Attachment F and composite utility plans in Attachment C for additional information.

10. STAKEHOLDER INVOLVEMENT

Construction of the facility as outlined in this PSR is contingent upon design and environmental permitting acceptance from the primary stakeholders and SCRRA Engineering and Equipment Departments. Additional stakeholders include, but are not limited to: SCRRA Operations Department, SCRRA Signals and Communications Department, SCRRA Facilities Department, SCRRA Executive Department, OCTA, the City of Irvine, the County of Orange, Orange County Flood Control District, Kinder Morgan, Southern California Gas Company, MCI, Irvine Ranch Water District, Moulton Niguel Water District and the Department of Navy. Given that the proposed OCMF will form an integral part of Metrolink's systemwide operations, the five-county member agencies are also important stakeholders. In addition to OCTA, these include: Los Angeles County Metropolitan Transportation Authority, Riverside County Transportation Commission, San Bernardino County Transportation Authority and Ventura County Transportation Commission.

10.1. ANTICIPATED PERMITS

Development of the OCMF will require permits from several of the key stakeholder identified above. Anticipated permits are listed in the Permit Matrix provided in Attachment G.

11. ENVIRONMENTAL ISSUES AND APPROVAL REQUIREMENTS

A summary level environmental assessment was performed, and an environmental checklist was initiated to help guide the environmental approvals process that will need to be followed. The project will be required to comply with the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). The anticipated CEQA environmental document for this project is an Initial Study, resulting in either a negative declaration or mitigated negative declaration. The anticipated NEPA environmental document is an Environmental Assessment, resulting in a Finding of No Significant Impact. This summary is provided in Attachment D – Initial Environmental Review.

12. CONTAMINATED SOIL

The Project site is located within a portion of the former Marine Corps Air Station (MCAS) El Toro, which was decommissioned in 1999. Hazardous materials, including chemicals and jet

fuels were stored and used on various portions of the former MCAS, including the OCMF site. These chemicals resulted in contamination of the soils, for which the Department of Navy (DON) was required to perform environmental remediation. Chemicals included volatile organic compounds, primarily industrial solvents relating to aircraft maintenance.

As part of the remediation process, the DON has two (2) ground water monitoring wells on the Project site (see Photo 5) to provide on-going monitoring of the contaminated ground water. Ground water cleanup and monitoring is expected to be ongoing for the next 30 years, based upon current readings. These wells are identified on Attachment C—Project Concept Plans. Based upon the proposed improvements, at least one (1) well will need to be relocated. The DON has indicated that well relocation is not problematic but will need to be coordinated with the DON. The DON and its agents need clear access to these wells to conduct maintenance and inspection. This occurs semi-annually and requires several hours for each well. Inspection and maintenance activities are conducted by two (2) people and require pickup truck access. All proposed improvements will require DON approval.

PHOTO 5: EXISTING MONITORING WELL IN THE MIDDLE OF PROPOSED STORAGE YARD



Source: STV, 2018

The DON also maintains a network of pipes that extend from ground water extraction wells north and east of the property, converging on a pump house compound that is northwest of the Project property (see Photo 6). As identified on files from the DON, the ground water extraction wells and pipe network on the project property are operational and development of OCMF will need to be coordinated with the DON. The DON pump house compound is located just outside the Project's property lines.

A Phase I Environmental Site Assessment (ESA) was not performed for this study. It is recommended that a Phase 1 and Phase 2 ESAs are performed in the next stage of project development to better define project costs and potential required mitigations.

PHOTO 6: EXISTING PUMP HOUSE COMPOUND NORTHWEST OF THE PROJECT PROPERTY



Source: STV, 2018

13. SITE DRAINAGE AND WATER QUALITY REQUIREMENTS

The topography of the site generally slopes from east to west. Given the orientation of the site being parallel to the railroad ROW and approximately 45 degrees from a north-south orientation, the low point of the site is at the north end nearest the existing railroad ROW. There are existing Orange County Flood Control District (OCFCD) open flow drainage channels located north and south of the site, both of which run in a direction approximately perpendicular to the railroad ROW, flowing from east to west and crossing under the railroad tracks (see Photo 7). The Bee Canyon Channel runs just past the south end of the site while the Marshburn Channel is located approximately 1,400-feet north of the site. The existing site currently drains towards the low point at the north end next to the railroad ROW at which point it is conveyed into the Marshburn Channel via an approximate 150-foot long concrete lined channel followed by an underground storm drainage line. It is anticipated that this general drainage pattern of storm water off the site will prevail after development of the OCMF. The drainage systems ultimately convey flow to Santa Ana River, which is also owned and maintained by the OCFCD (Facility E01). A detention basin to regulate stormwater discharge into the County system, as well as storm filter devices to treat the water, should be anticipated to meet Santa Ana Regional Water Quality Control Board (SARWQCB) requirements. The stormwater facilities will need to be sized in future design phases to accommodate a 25-year, 24-hour storm event.

PHOTO 7: EXISTING OPEN FLOW DRAINAGE CHANNEL NORTH OF THE PROJECT SITE



Source: STV, 2018

14. EXISTING UTILITIES

The two most significant existing utilities are described below. Refer to the Utilities Matrix in Attachment F for additional information on existing utilities.

14.1. RECLAIMED WATER LINE

A six (6) inch diameter reclaimed water line runs most of the length of the site approximately 80 feet off the westerly edge of the site. Irvine Ranch Water District (IRWD) has a 20-foot-wide easement located near the reclaimed water line. However, they have indicated by telephone discussion and e-mail (see Attachment I) that they do not own any facilities within the project site. The Department of the Navy and Moulton Niguel Water District have also confirmed the reclaimed water line is not their facility. Refer to Attachment I for emails regarding this line. Because the reclaimed water line is no longer in service, it can be demolished and removed. OCTA is pursuing removal of the easement with IRWD.

14.2. SOUTHERN CALIFORNIA GAS TRANSMISSION LINE

A 30-inch diameter Southern California Gas line runs longitudinally along the east edge of the railroad ROW, located within a 10-foot-wide easement. As previously noted, this gas line will need to be crossed over by the proposed yard lead tracks twice at a minimum; once at the south end and once at the north end of the yard. A potential solution to protect the line at the crossing will be to construct a protective slab. However, the longitudinal gas line, which is located approximately five (5) feet from the east edge of the railroad ROW, potentially conflicts with the yard lead tracks, which requires an approximately 22-foot-wide strip of the ROW east of the existing main tracks. Options to address the gas line include the following:

- Relocate the gas line to the east and off the railroad ROW.
- Position the yard lead tracks and associated retaining walls such that they are located outside the 10-foot-wide gas line easement (except at the two required crossings). This option would constrain construction of a future fourth main track, though it may still be feasible.
- Protect the gas line in place by using pile supported retaining walls where applicable, and a protective slab or encasement for the length of the lead track crossings.

The conceptual plans and cost estimate assume that protecting the gas line in place via pile supported retaining walls that avoids increasing the load on the gas line and protective slab or encasement will be the most likely and cost-effective solution.

15. KEY DESIGN PARAMETERS

15.1. RAILROAD ALIGNMENT

The existing double track mainline is on a horizontal tangent along the length of the project site. The future construction of a third and fourth track were accounted for in the preliminary design of the lead tracks. Lead tracks will initiate off the main track 1 (MT-1) approximately 1,000 feet north (railroad west) and south (railroad east) of the site. This will allow a clear length to support one (1) full 8-car train clear of the main line prior to entering the yard. Possible additions of mainline tracks in the future were also considered in the layout of the yard.

There is an existing universal crossover conveniently located less than a quarter mile from the south end of the proposed south yard lead. This will allow trains to crossover from either MT-1 or MT-2 as they enter or depart the yard at the south end. Because the next existing universal crossovers are located approximately five miles to the north, a new universal crossover should be installed as part of the OCMF project to provide full operational functionality from both main tracks into and out of the yard to the north.

Mainline turnouts will be No. 10 turnouts while all yard turnouts will be No. 8 turnouts. Horizontal curvature in the yard is selected to optimize the layout and storage capacity in the yard with a general maximum of 10-degree curvature used. Several 12-degree curves are also used, which will require approval by SCRRRA. Design speed into and out of the Lead Tracks will be 20 MPH, while operations within the yard will be limited to 10 MPH. Yard storage tracks will be configured in conformance with SCRRRA standard plans with 23'-3" track centers to provide room for paved cart paths, light poles and other appurtenant facilities including yard water, air and power.

15.2. RAILROAD PROFILE

The existing double track mainline profile approaches one percent (1%), rising from the north (west) end of the site as the tracks pass under the CA-133 overhead structure, to the south

(east) end of the site where the mainline tracks cross over the Bee Canyon Channel on a double track bridge. Given that the yard tracks must be relatively flat (SCRRA Design Criteria calls for maximum 0.2%) and need to tie into the mainline tracks at both ends, this poses a significant design issue. To address, the lead track at the north end will have to be raised (relative to the mainline tracks) several feet prior to entering the yard. Then the lead track at the south end would be at or slightly below the mainline track profile before rising back up to join it. The CA-133 overhead structure and Bee Canyon Channel both pose constraints to how much the yard lead can be raised or lowered (respectively) from the mainline. Existing clearance under the CA-133 structure is approximately 33-feet, which allows for the lead track to begin rising to the elevation needed for the yard. A track profile for the yard lead and yard tracks is included in the conceptual plans. At the north entrance into the yard, the top of rail profile will be approximately eight (8) feet above the existing ground, which will require the yard lead to be constructed on a retained fill. Building a retained fill in the direct vicinity of the CA-133 structure foundations will require design consideration to avoid impacts to it and will require coordination with Caltrans. If necessary, lightweight fill or concrete with a mechanically stabilized earth (MSE) wall can be considered to mitigate the added weight of the fill. The southern part of the yard would be up to approximately three (3) feet below existing grade, but the top of rail profile is able to rise back up to grade prior to crossing Bee Canyon Channel.

15.3. BRIDGE AND RETAINING WALLS

A single-track bridge will be needed to carry the south lead track over the Bee Canyon Channel. The soffit elevation of the proposed bridge will match the existing mainline bridge soffit elevation not to create a potential restriction in channel capacity (see Photo 8). The proposed single-track bridge will be an approximately 30-foot-long single span steel beam structure in accordance with SCRRA standards. A general arrangement plan of the bridge is provided in the conceptual drawings. A new bridge to accommodate the future third main track at 15-foot centers to the existing track would not conflict with the yard lead bridge, as there would be several feet of clear space between them. However, construction of the future third main track bridge would need to be a physical widening of the existing main track bridge rather than an independent bridge, which appears feasible.

Retaining walls will likely be needed along a portion of the north (west) yard lead, on both sides of the lead, to make up the height difference between the existing ground and the yard lead track as it rises up to the grade needed at the north end of the yard. A traditional cast-in-place concrete cantilever wall is a good choice for these walls. A maximum design height of approximately eight (8) feet will be needed. The face of the proposed wall will be offset from the nearest existing main track by approximately 25-feet. This will accommodate a future third main track, at 15-foot centers from the existing tracks and 10-feet clear of the proposed wall. Refer to the typical section provided in the conceptual plans. Any portion of the retaining wall in the vicinity of the 10' wide gas line easement along east edge of the railroad ROW will need to be designed in coordination with Southern California Gas Line Company and not impose additional loads to the gas line.

PHOTO 8: EXISTING BEE CANYON CHANNEL BRIDGE



Source: STV, 2018

15.4. RAILROAD SIGNALS

Train movements into and out of the yard lead tracks at each end will be through a controlled (signalized) power-operated No. 10 turnout. The No. 8 yard turnouts will be hand-operated and under manual yard control, with signalization. Blue flag derails will be used along the storage tracks and shop tracks to permit workers to work on the trains while trains continue to operate along on other yard tracks (or in the case of the storage tracks, on the other half of the same storage track).

15.5. SANDING AND FUELING FACILITIES

Two (2) sanding and fueling facilities are proposed; one (1) at each end of the service and inspection platform, to accommodate locomotive positioning on either end of the train. Underground or aboveground fuel tank(s) will be required. Underground storage tanks minimize above ground obstructions, however, may be difficult to permit and increase risk of undetected spills. Above ground fuel tanks are an increasingly popular alternative to underground tanks and space permitting. A code-compliant spill containment and monitoring system will need to be provided in either case.

15.6. TRAIN WASH FACILITY

A train wash facility is proposed to the northwest of the service and inspection tracks, with a double crossover situated such that trains coming out of the service and inspection area can either directly enter the train wash or bypass it. The train wash facility will be similar to the one in service at EMF, with the used wash water collected in a trench drain that gravity flows to a

catch basin with a strainer basket. The wash water then gravity flows to a below-grade settling pit, for settling of solids and skimming of floating oil. The water is then pumped through an above-grade filtration system for removal of fine particulates, stored in a reclaim water tank, and re-used in the train wash facility. An automatic recirculation system, supplemented by an ozone generator or other technology, prevents the water from becoming septic.

15.7. MAINTENANCE SHOP

The 37,000 SF maintenance shop is planned for Phase 2. The shop would have two (2) pit tracks and be equipped to perform regular three (3) month, six (6) month and one (1) year preventive maintenance cycles on trainsets. It will be equipped with a 10-ton crane for light repair, including AC unit change out. A stub ending set out track and materials and equipment storage areas would be provided on the site outside the building.

15.8. TRANSPORTATION BUILDING

As planned in Phase 1, the transportation building will be a 5,100 SF building housing staff and providing offices for management, training space, and train and shop crew facilities. This building could potentially be a stick built, or a modular building, which would help expedite construction. The transportation building, and associated parking will be sized for 75 to 80 staff members, as follows:

- Train Crews – 24 x 2 shifts = 48
- Mechanics – 25 (at full build out of Phase 2)
- Office Staff – 5

16. POTENTIAL ELIGIBLE FUNDING SOURCES

The project will pursue federal, state, and local funding for construction of OCMF. One source of funding is SCRRA's TIRCP 2018 Allocation, in which \$58,340,000 has been allocated to the first phase of OCMF. This does not fund the entire construction of Phase I and additional funds will need to be sought.

17. DELIVERY SCHEDULE

Project delivery is dependent upon the pace at which environmental approvals, design, procurement, and construction proceed. As discussed in more detail below, timing of approvals of this Project and other proposed projects will have an impact on the schedule for delivery. Some processes can be run in parallel to help speed up the delivery of the different phases. The timelines below reflect design bid build project delivery as this enables SCRRA to develop final design while the environmental process is progressing.

17.1.PHASE 1

A key component affecting delivery of the Phase 1 project will lie in the type of environmental approval process required under both CEQA and NEPA, with an estimated duration of between two (2) and three (3) years, assuming no substantial unexpected issues arise. See Attachment D – Initial Environmental Review for additional information. Design and plan approvals could be completed within two (2) years and would run in parallel with the environmental process. Construction contract procurement would be expected to take six (6) months after completion of design and environmental approval. Construction is estimated to take 18 to 24 months, for a total project duration of between four (4) years and five-and-a-half (5 ½) years.

17.2.PHASE 2

It is presumed that Phase 2 would be environmentally approved along with Phase 1 and that utilities would be sized and brought in during Phase 1. The site design this study proposes places the Maintenance of Equipment Shop on an island, allowing the construction to proceed with limited disturbance to ongoing operations. Based on commuter rail maintenance facilities of similar size and complexity, the design and plan check could be completed in 18 months with procurement taking another six (6) months. Construction could be accomplished in 18 to 24 months, including testing and training of staff. Total duration from start of design through construction completion would take between three-and-a-half (3 ½) and four (4) years.

18. COST ESTIMATES

A key outcome of this PSR is the development of conceptual level cost estimates to be used for budgeting future design and implementation phases. Cost estimates for each phase are provided in the table below. Detailed cost estimates are included as Attachment A.

TABLE 3: SUMMARY OF COST ESTIMATES

| | Construction Cost (Subtotal) | Project Cost |
|--|-------------------------------------|---------------------|
| Phase 1 | \$43,200,000 | \$95,600,000 |
| Phase 2 | \$27,100,000 | \$68,400,000 |
| Total, Phased Construction | \$70,300,000 | \$164,000,000* |
| Total if Constructed in a Single Phase | | \$149,900,000* |

*Difference in cost is due to an additional three years of inflation added to Phase 2 if performed separately.

19. SUMMARY OF PROJECT RISKS

A Risk Matrix was developed to evaluate and treat identified potential risks with this Project and associated Risk Mitigation Measures. Significant risks are as follows:

- Environmental challenges to project development if 100 Acre Development receives environmental approval before this Project;
- Contaminated soils, particularly at the south end where a several-foot deep cut is anticipated (see next bullet point).
- Designing grading to comply with maximum 0.2% slope on storage tracks (site slopes roughly 1% upward from north to south); this requires an approximate 8-foot fill at the north end of the site and an approximate 3-foot cut at the south end. The fill could result in potential settlement issues and maintenance access issues to existing Department of Navy facilities at the north end of the site, which would either need to be raised to grade or surrounded by retaining walls to make up the grade difference.
- The Bee Canyon Bridge, a fixed high point at the south, while maintaining clearance for CA-133 overpass at the north poses a potential risk, but the survey data and preliminary track profile shows the risk to be low. See track profile in conceptual plans.
- Mitigation of potential impacts to the Southern California Gas Transmission Line running along the east edge of the railroad ROW.
- Support and funding required to complete full build out of the project.

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ATTACHMENT A
PROJECT ESTIMATES

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Conceptual (5% DESIGN)

PROJECT COST ESTIMATE

Project Name: Orange County Maintenance Facility Project
 Sub-Group: Summary by Phase
 Design Level: Concept
 Last Updated: 11-Jan-19

| ITEM | DESCRIPTION | QUANTITY | UNIT COST | TOTAL COST | NOTES |
|--|-------------|----------|-----------|-------------------------|-------------------------|
| 1 | PHASE 1 | | | \$ 95,600,000 | Assumes Constr. In 2021 |
| 2 | PHASE 2 | | | \$ 68,400,000 | Assumes Constr. In 2024 |
| TOTAL - BOTH PHASES (PERFORMED SEPARATELY) | | | | \$ 164,000,000 * | |
| PHASE 1 AND 2 COMBINED (PERFORMED IN ONE PROJECT) | | | | \$ 149,900,000 * | Assumes Constr. In 2021 |

* Difference in cost is due to inflation of Phase 2 by 3 additional years if performed separately.

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PROJECT COST ESTIMATE

Project Name: Orange County Maintenance Facility Project
Sub-Group: Phase 1
Design Level: Concept
Last Updated: 11-Jan-19

Conceptual (5% DESIGN)

| ITEM | DESCRIPTION | QUANTITY | UNIT COST | TOTAL COST | NOTES |
|--|--|-------------------------|-----------|----------------------|--|
| DIVISION 01 | GENERAL REQUIREMENTS | | | \$ 2,946,582 | |
| DIVISION 02 | DEMOLITION | | | \$ 276,865 | |
| DIVISION 03 | CONCRETE | | | \$ 789,719 | |
| DIVISION 10 | SPECIALTIES | | | \$ 127,500 | |
| DIVISION 13 | SPECIAL CONSTRUCTION | | | \$ 11,945,333 | Buildings & Facilities |
| DIVISION 26 | ELECTRICAL | | | \$ 4,582,177 | Exterior Yard Only |
| DIVISION 31 | EARTHWORK | | | \$ 1,856,675 | |
| DIVISION 32 | EXTERIOR IMPROVEMENTS | | | \$ 3,849,622 | |
| DIVISION 33 | UTILITIES | | | \$ 4,970,030 | |
| DIVISION 34 | TRANSPORTATION | | | \$ 11,886,966 | |
| SUB-TOTAL: CONSTRUCTION COSTS | | | | \$ 43,231,469 | |
| | CONSTRUCTION CONTINGENCY | DPM 15% | | \$ 6,484,720 | % of construction cost |
| | CIVIL DESIGN | DPM 10% | | \$ 4,323,147 | % of construction cost |
| | CIVIL DESIGN SUPPORT DURING CONSTRUCTION | DPM 3% | | \$ 1,296,944 | % of construction cost |
| | S&C DESIGN | DPM 3% | | \$ 1,296,944 | % of construction cost |
| | S&C DESIGN SUPPORT DURING CONSTRUCTION | DPM 3% | | \$ 1,296,944 | % of construction cost |
| | PROJECT MANAGEMENT | DPM 4% | | \$ 1,729,259 | % of construction cost |
| | CONSTRUCTION MANAGEMENT | DPM 8% | | \$ 3,458,518 | % of construction cost |
| | FLAGGING | DPM 2% | | \$ 864,629 | 2% assigned b/c most of project is off ROW |
| | AGENCY COSTS | DPM 10% | | \$ 4,323,147 | % of construction cost |
| | MAINTENANCE OF WAY | | | | |
| | TRACK/STRUCT. MAINTENANCE SUPPORT | | | | |
| | S&C MAINTENANCE SUPPORT | | | | |
| | MATERIAL PROCUREMENT LIST (FORM DPM-17) | | | | |
| | RIGHT-OF-WAY ACQUISITION | | | | |
| | RAILROAD WORK ORDERS (SCRRA) | | | \$ 75,000 | |
| | OTHERS (PERMITS, FEES, LEGAL) | 1% | | \$ 432,315 | |
| SUB-TOTAL: PROJECT RELATED OVERHEAD COSTS | | | | \$ 25,581,567 | |
| | PROJECT RESERVE/CONTINGENCY | DPM 20% | | \$ 13,762,607 | % of sum of above costs |
| | INFLATION | Rate: 5.00% Years: 3.00 | | \$ 13,015,986 | |
| TOTAL ESTIMATED PROJECT COST: | | | | \$ 95,600,000 | |



Conceptual (5% DESIGN)

PROJECT COST ESTIMATE

Project Name: Orange County Maintenance Facility Project
 Sub-Group: Phase 2
 Design Level: Concept
 Last Updated: 11-Jan-19

| ITEM | DESCRIPTION | QUANTITY | UNIT COST | TOTAL COST | NOTES |
|--|--|----------|--------------|----------------------|---|
| DIVISION 01 | GENERAL REQUIREMENTS | | | \$ 2,573,867 | |
| DIVISION 02 | DEMOLITION | | | \$ 5,000 | |
| DIVISION 03 | CONCRETE | | | \$ 100,612 | |
| DIVISION 10 | SPECIALTIES | | | \$ - | |
| DIVISION 13 | SPECIAL CONSTRUCTION | | | \$ 20,474,800 | |
| DIVISION 26 | ELECTRICAL | | | \$ 94,000 | |
| DIVISION 31 | EARTHWORK | | | \$ 498,065 | |
| DIVISION 32 | EXTERIOR IMPROVEMENTS | | | \$ 729,252 | |
| DIVISION 33 | UTILITIES | | | \$ 583,625 | |
| DIVISION 34 | TRANSPORTATION | | | \$ 2,032,669 | |
| SUB-TOTAL: CONSTRUCTION COSTS | | | | \$27,091,891 | |
| | CONSTRUCTION CONTINGENCY | DPM | 15% | \$ 4,063,784 | % of construction cost |
| | CIVIL DESIGN | DPM | 10% | \$ 2,709,189 | % of construction cost |
| | CIVIL DESIGN SUPPORT DURING CONSTRUCTION | DPM | 3% | \$ 812,757 | % of construction cost |
| | S&C DESIGN | DPM | 3% | \$ 812,757 | % of construction cost |
| | S&C DESIGN SUPPORT DURING CONSTRUCTION | DPM | 3% | \$ 812,757 | % of construction cost |
| | PROJECT MANAGEMENT | DPM | 4% | \$ 1,083,676 | % of construction cost |
| | CONSTRUCTION MANAGEMENT | DPM | 8% | \$ 2,167,351 | % of construction cost |
| | FLAGGING | DPM | 0% | \$ - | No flagging because all of project is off ROW |
| | AGENCY COSTS | DPM | 10% | \$ 2,709,189 | % of construction cost |
| | MAINTENANCE OF WAY | | | | |
| | TRACK/STRUCT. MAINTENANCE SUPPORT | | | | |
| | S&C MAINTENANCE SUPPORT | | | | |
| | MATERIAL PROCUREMENT LIST (FORM DPM-17) | | | | |
| | RIGHT-OF-WAY ACQUISITION | | | | |
| | RAILROAD WORK ORDERS (SCRRA) | | | \$ - | |
| | OTHERS (PERMITS, FEES, LEGAL) | | 1% | \$ 270,919 | |
| SUB-TOTAL: PROJECT RELATED OVERHEAD COSTS | | | | \$ 15,442,378 | |
| | PROJECT RESERVE/CONTINGENCY | DPM | 20% | \$ 8,506,854 | % of sum of above costs |
| | INFLATION | Rate: | 5.00% Years: | 6.00 | \$ 17,358,863 |
| TOTAL ESTIMATED PROJECT COST: | | | | \$68,400,000 | |



METROLINK

Conceptual (5% DESIGN)

ENGINEER'S ESTIMATE

Project Name: Orange County Maintenance Facility Project
 Sub-Group: Phase 1
 Design Level: Concept
 Last Updated: 11-Jan-19

| ITEM NO. | WORK DESCRIPTION | UNIT | QUANTITY | UNIT COST | TOTAL COST | NOTES |
|---|---|------|----------|-----------|---------------------|---|
| DIVISION 01 GENERAL REQUIREMENTS | | | | | | |
| 01 35 15. Maintenance and Protection of Traffic | | | | | | |
| 01 35 15.01 | Maintenance and Protection of Traffic, 0.5% of Bid | LS | 1 | 0.5% | \$ 140,313 | |
| 10 50 00. Temporary Facilities and Controls | | | | | | |
| 10 50 00.01 | Temporary Facilities and Controls, Maximum 6% of Bid | LS | 1 | 6% | \$ 1,683,761 | |
| 01 57 19. Temporary Environmental Controls | | | | | | |
| 01 57 19.01 | Install and Monitor SWPP Erosion Control BMP, 1% of Bid | LS | 1 | 1% | \$ 280,627 | |
| 01 71 13. Mobilization, Demobilization, and Controls | | | | | | |
| 01 71 13.01 | Mobilization, Demobilization, and Controls | LS | 1 | 3% | \$ 841,881 | |
| GENERAL REQUIREMENTS SUBTOTAL | | | | | \$ 2,946,582 | |
| DIVISION 02 DEMOLITION | | | | | | |
| 24100 Demolition | | | | | | |
| 02 41 00.01 | Track Removal | TF | 100 | \$ 50 | \$ 5,000 | For Lead Track turnout installation, S. End |
| 02 41 00.02 | Remove Existing Asphalt Concrete Pavement | SF | 72000 | \$ 3 | \$ 180,000 | |
| 02 41 00.03 | Remove Concrete Sidewalk | SF | 1059 | \$ 5 | \$ 5,295 | |
| 02 41 00.04 | Remove Existing Curb & Gutter | LF | 250 | \$ 5 | \$ 1,250 | |
| 02 41 00.05 | Adjust Existing Utility to Grade | EA | 2 | \$ 1,500 | \$ 3,000 | |
| 02 41 00.06 | Miscellaneous Demolition and Removal | LS | 1 | \$ 60,000 | \$ 60,000 | |
| 02 41 00.07 | Remove Chainlink Fence | LF | 2790 | \$ 8 | \$ 22,320 | |
| DEMOLITION SUBTOTAL | | | | | \$ 276,865 | |
| DIVISION 03 CONCRETE | | | | | | |
| 03 31 00. Concrete Structures | | | | | | |
| 03 31 00.01 | Culvert Headwall | CY | 0 | \$ 950 | \$ - | |
| 03 31 00.02 | Concrete Sidewalks | SF | 1680 | \$ 12 | \$ 20,160 | |
| 03 31 00.03 | Cast-in-Place Concrete (Retaining Wall) | CY | 530 | \$ 1,200 | \$ 636,187 | |
| 03 31 00.04 | Culvert Encasement | CY | 9 | \$ 750 | \$ 6,983 | |
| 03 31 00.05 | Concrete Apron/Slab-on-grade | CY | 361 | \$ 350 | \$ 126,389 | Includes Service Platform between Pits |
| CONCRETE SUBTOTAL | | | | | \$ 789,719 | |
| DIVISION 09 FINISHES | | | | | | |
| 09 61 50. Detectable Warning Tactile | | | | | | |
| 09 61 50.01 | Detectable Warning Tactile for Sidewalks | SF | 48 | \$ 60 | \$ 2,880 | |



METROLINK

Conceptual (5% DESIGN)

ENGINEER'S ESTIMATE

Project Name: Orange County Maintenance Facility Project
 Sub-Group: Phase 1
 Design Level: Concept
 Last Updated: 11-Jan-19

| ITEM NO. | WORK DESCRIPTION | UNIT | QUANTITY | UNIT COST | TOTAL COST | NOTES |
|--------------------------------------|---|------|----------|--------------|----------------------|-----------------|
| FINISHES SUBTOTAL | | | | | \$ 2,880 | |
| DIVISION 10 | SPECIALTIES | | | | | |
| 10 14 53. | Roadway (Traffic) Signage | | | | | |
| 10 14 53.01 | Install Sign and Post | EA | 10 | \$ 750 | \$ 7,500 | |
| 10 14 53.02 | Traffic Signals (Marine Way Intersection with Main Entrance Road) | EA | 1 | \$ 120,000 | \$ 120,000 | |
| SPECIALTIES SUBTOTAL | | | | | \$ 127,500 | |
| DIVISION 13 | SPECIAL CONSTRUCTION | | | | | |
| 13 00 00. | Buildings and Facilities | | | | | |
| 13 00 00.01 | Maintenance Building | SF | 0 | \$ 550 | \$ - | |
| 13 00 00.02 | Utility Building | SF | 2400 | \$ 300 | \$ 720,000 | |
| 13 00 00.03 | Train Wash Facility | LS | 1 | \$ 4,000,000 | \$ 4,000,000 | |
| 13 00 00.04 | Fueling and Sanding Facility, incl Support Structure and Piping | EA | 2 | \$ 2,250,000 | \$ 4,500,000 | |
| 13 00 00.05 | Service and Inspection Pits | CY | 1447 | \$ 650 | \$ 940,333 | |
| 13 00 00.06 | Transportation/Administration Building | SF | 5100 | \$ 350 | \$ 1,785,000 | |
| 13 00 00.07 | Material Storage Compound | SF | 0 | \$ 8 | \$ - | |
| 13 00 00.08 | Equipment Storage Compound | SF | 0 | \$ 8 | \$ - | |
| SPECIAL CONSTRUCTION SUBTOTAL | | | | | \$ 11,945,333 | |
| DIVISION 26 | ELECTRICAL | | | | | |
| 26 13 00. | Conduits, Raceway, and Boxes | | | | | |
| 26 13 00.01 | Electrical Manholes | EA | 20 | \$ 1,500 | \$ 30,000 | |
| 26 13 00.02 | Conduits and Conductors - Exterior Lighting | LF | 12636 | \$ 20 | \$ 252,720 | |
| 26 13 00.03 | Conduits and Conductors - Wayside Power | LF | 7500 | \$ 20 | \$ 150,000 | |
| 26 23 00. | Switchgear and Transformers | | | | | |
| 26 23 00.01 | 12.47 kV Switchgear (incl grounding system) | EA | 1 | \$ 200,000 | \$ 200,000 | |
| 26 23 00.02 | 300 KVA Transformer, 12.47KV-480/277V-3P-4W-WP + PAD (incl GGS) | EA | 1 | \$ 120,000 | \$ 120,000 | |
| 26 23 00.03 | 750 KVA Transformer, 12.47KV-480/277V-3P-4W-WP + PAD (incl GGS) | EA | 1 | \$ 175,000 | \$ 175,000 | |
| 26 23 00.04 | 12.47KV Unit Substation, 480/277V-3P-4W-WP | EA | 1 | \$ 500,000 | \$ 500,000 | |
| 26 23 00.05 | Wayside Distribution Panel, 1600A-3P-4W-480/277V | EA | 12 | \$ 95,000 | \$ 1,140,000 | |
| 26 23 00.06 | Wayside Distribution Panel, 4000A-3P-4W-480/277V | EA | 4 | \$ 150,000 | \$ 600,000 | |
| 26 51 00. | Interior Lighting | | | | | |
| 26 51 00.01 | Included in SF Building Cost | EA | | \$ 10,000 | \$ - | |
| 26 56 00. | Exterior Lighting | | | | | |
| 26 56 00.01 | Install Public Street Light Pole | EA | 9 | \$ 8,500 | \$ 79,957 | For access road |
| 26 56 00.02 | Install Circulation and Parking Lot Light Pole - 15' high | EA | 26 | \$ 5,000 | \$ 130,000 | |



METROLINK.

Conceptual (5% DESIGN)

ENGINEER'S ESTIMATE

Project Name: Orange County Maintenance Facility Project
 Sub-Group: Phase 1
 Design Level: Concept
 Last Updated: 11-Jan-19

| ITEM NO. | WORK DESCRIPTION | UNIT | QUANTITY | UNIT COST | TOTAL COST | NOTES |
|----------------------------|--|------|----------|-----------|---------------------|---|
| 26 56 00.03 | Install Storage Yard Light Pole - 25' high | EA | 161 | \$ 7,500 | \$ 1,204,500 | |
| ELECTRICAL SUBTOTAL | | | | | \$ 4,582,177 | |
| DIVISION 31 | EARTHWORK | | | | | |
| 31 11 00. | Site Clearing | | | | | |
| 31 11 00.01 | Site Clearing | AC | 17.3 | \$ 7,500 | \$ 129,750 | |
| 31 20 00. | Earthwork | | | | | |
| 31 20 00.01 | Earthwork - Grading | CY | 43148 | \$ 20 | \$ 862,960 | |
| 31 20 00.02 | Embankment - Imported Fill | CY | 30526 | \$ 25 | \$ 763,150 | |
| 31 20 00.03 | Structural Backfill | CY | 1833 | \$ 55 | \$ 100,815 | |
| EARTHWORK SUBTOTAL | | | | | \$ 1,856,675 | |
| DIVISION 32 | EXTERIOR IMPROVEMENTS | | 1 | | | |
| 32 12 00. | Hot Mix Asphalt (HMA) Pavement | | | | | |
| 32 12 00.01 | 6" AC Pavement Over Primecoat and 8" CAB | SF | 337981 | \$ 8 | \$ 2,703,848 | Entrance roads and main circulation roads |
| 32 12 00.02 | 4" AC Pavement Over Primecoat and 6" CAB | SF | 111072 | \$ 5 | \$ 555,360 | Parking lots and cart paths |
| 32 16 00. | Curbs, Gutters, and Sidewalks | | | | | |
| 32 16 00.01 | 6" PCC Curb and Gutter Over 4" CMB | LF | 6530 | \$ 55 | \$ 359,164 | |
| 32 16 00.02 | 6" PCC Curb Over 4" CMB | LF | 1000 | \$ 40 | \$ 40,000 | |
| 32 17 13. | Paving Specialties | | | | | |
| 32 17 13.01 | Install Painted Lines and Markings | LS | 1 | \$ 10,000 | \$ 10,000 | |
| 32 31 13. | Chain Link Fencing and Gates | | | | | |
| 32 31 13.01 | 6' High Chain Link Fence | LF | 200 | \$ 80 | \$ 16,000 | |
| 32 31 13.02 | 6' High Chain Link Double Swing Gate | EA | 2 | \$ 750 | \$ 1,500 | |
| 32 32 16. | Gravity Block Retaining Walls | | | | | |
| 32 32 16.01 | Gravity Block Retaining Walls | SF | 0 | \$ 60 | \$ - | |
| 32 80 00. | Irrigation System | | | | | |
| 32 80 00.01 | Irrigation System | LS | 1 | \$ 65,000 | \$ 65,000 | |
| 32 90 00. | Landscaping | | | | | |
| 32 90 00.01 | Landscaping | LS | 1 | \$ 70,000 | \$ 70,000 | |
| 32 91 00. | Soil Erosion, Sediment Control, Top Soiling and Seeding | | | | | |
| 32 91 00.01 | Vegetated Swale | SF | 2500 | \$ 6 | \$ 13,750 | |



METROLINK

Conceptual (5% DESIGN)

ENGINEER'S ESTIMATE

Project Name: Orange County Maintenance Facility Project
 Sub-Group: Phase 1
 Design Level: Concept
 Last Updated: 11-Jan-19

| ITEM NO. | WORK DESCRIPTION | UNIT | QUANTITY | UNIT COST | TOTAL COST | NOTES |
|---------------------------------------|--|------|----------|------------|---------------------|-------------------------------|
| 32 91 00.02 | Riprap | CY | 200 | \$ 75 | \$ 15,000 | |
| EXTERIOR IMPROVEMENTS SUBTOTAL | | | | | \$ 3,849,622 | |
| DIVISION 33 | UTILITIES | | | | | |
| 33 00 00. | Utility Allowance | | | | | |
| 33 00 00.01 | Utility Allowance | LS | 1 | \$ 100,000 | \$ 100,000 | |
| 33 00 00.02 | Relocate Reclaimed Water Line - 8" Dia. | LF | 0 | \$ 150 | \$ - | Assume is abandoned |
| 33 00 00.03 | Protective Slab/Bridge over 30" Gas Line | SF | 1800 | \$ 175 | \$ 315,000 | For south lead track crossing |
| 33 00 00.05 | Relocate 30" Gas Line off ROW | LF | 0 | \$ 2,500 | \$ - | |
| 33 10 00. | Water Utilities | | | | | |
| 33 10 00.01 | Domestic Water Service POC | EA | 1 | \$ 7,500 | \$ 7,500 | |
| 33 10 00.02 | Domestic Water Service - 6" Dia. | LF | 1506 | \$ 125 | \$ 188,250 | |
| 33 10 00.03 | Domestic Water for Train Service - 2" Dia. | LF | 4000 | \$ 75 | \$ 300,000 | |
| 33 10 00.04 | Backflow Preventer | EA | 1 | \$ 10,000 | \$ 10,000 | |
| 33 10 00.05 | Train Service Hose Bibs | EA | 48 | \$ 1,000 | \$ 48,000 | |
| 33 10 00.06 | Miscellaneous Water Accessories (Valves, Specialties) | LS | 1 | \$ 50,000 | \$ 50,000 | |
| 33 10 00.07 | Relocate Groundwater Monitoring Well | EA | 1 | \$ 10,000 | \$ 10,000 | |
| 33 10 00.08 | Fire Water Service POC | EA | 1 | \$ 7,500 | \$ 7,500 | |
| 33 10 00.09 | Domestic Water Service - 8" Dia. | LF | 2500 | \$ 160 | \$ 400,000 | |
| 33 10 00.1 | Fire Hydrant | EA | 8 | \$ 8,000 | \$ 64,000 | |
| 33 10 00.11 | Miscellaneous Fire Water Accessories (Valves, Specialties) | LS | 1 | \$ 20,000 | \$ 20,000 | |
| 33 30 00. | Sanitary Sewerage | | | | | |
| 33 30 00.01 | Sanitary Sewer POC | EA | 1 | \$ 7,500 | \$ 7,500 | |
| 33 30 00.02 | Sanitary Sewer - Main Lateral to Street - 8" Dia. | LF | 800 | \$ 115 | \$ 92,000 | |
| 33 30 00.03 | Sanitary Sewer - Yard Service - 4" Dia. | LF | 4000 | \$ 75 | \$ 300,000 | |
| 33 30 00.04 | Sanitary Manholes | EA | 12 | \$ 7,500 | \$ 90,000 | |
| 33 30 00.05 | Oil Water Separator | EA | 1 | \$ - | \$ - | Incl. in Facility SF Costs |
| 33 40 00. | Storm Drainage Utilities | | | | | |
| 33 40 00.01 | Culvert Extension 12" RCP | LF | 0 | \$ 150 | \$ - | |
| 33 40 00.02 | Storm Drain Line - 24" RCP | LF | 3300 | \$ 175 | \$ 577,500 | |
| 33 40 00.03 | Storm Drain Manholes | EA | 12 | \$ 8,000 | \$ 96,000 | |
| 33 40 00.04 | Storm Drain Inlets | EA | 14 | \$ 6,000 | \$ 84,000 | |
| 33 40 00.05 | Infiltration Ditches for WQMP | SF | 2500 | \$ 15 | \$ 37,500 | |
| 33 40 00.06 | Storm Water Treatment (Filter) System | EA | 2 | \$ 100,000 | \$ 200,000 | |
| 33 46 00. | Underdrains | | | | | |
| 33 46 00.01 | Track Underdrain - 8" Dia Perforated PVC | LF | 12568 | \$ 85 | \$ 1,068,280 | |
| 33 46 00.02 | Cleanouts | EA | 45 | \$ 1,000 | \$ 45,000 | |



METROLINK.

Conceptual (5% DESIGN)

ENGINEER'S ESTIMATE

Project Name: Orange County Maintenance Facility Project
 Sub-Group: Phase 1
 Design Level: Concept
 Last Updated: 11-Jan-19

| ITEM NO. | WORK DESCRIPTION | UNIT | QUANTITY | UNIT COST | TOTAL COST | NOTES |
|------------------------------------|--|------|----------|--------------|----------------------|------------------------------|
| 35 65 00. | Compressed Air | | | | | |
| 35 65 00.01 | Yard Air Compressor System | EA | 1 | \$ 150,000 | \$ 150,000 | |
| 35 65 00.02 | Yard Air Piping - 3" Dia. | LF | 2300 | \$ 300 | \$ 690,000 | |
| 35 65 00.03 | Yard Air Service Points | EA | 12 | \$ 1,000 | \$ 12,000 | |
| UTILITIES SUBTOTAL | | | | | \$ 4,970,030 | |
| DIVISION 34 | TRANSPORTATION | | | | | |
| 34 42 00. | Railroad Signals | | | | | |
| 34 42 00.01 | Track Signal Work | LS | 1 | \$ - | \$ - | |
| 34 42 00.02 | New Control Point | LS | 1 | \$ 1,800,000 | \$ 1,800,000 | |
| 34 42 00.03 | Positive Train Control System Configuration Updates | LS | 1 | \$ 500,000 | \$ 500,000 | |
| 34 11 26. | Ballast | | | | | |
| 34 11 26.01 | Furnish, Place and Compact Ballast | CY | 17200 | \$ 40 | \$ 688,000 | |
| 34 11 27. | Subballast | | | | | |
| 34 11 27.01 | Furnish, Place and Compact Sub-Ballast | CY | 3631 | \$ 50 | \$ 181,534 | |
| 34 72 00. | Trackwork | | | | | |
| 34 72 00.01 | Furnish and Install New Track - 136# CWR + Conc Ties - incl rail, ballast, ties, OTM | TF | 17684 | \$ 275 | \$ 4,863,232 | |
| 34 72 00.02 | Remove and Salvage Mainline Track and Deliver to SCRRA | TF | 115 | \$ 80 | \$ 9,200 | |
| 34 72 00.03 | Furnish and Install New #8 Tangential SCRRA Manual Turnout on Concrete Ties | EA | 20 | \$ 125,000 | \$ 2,500,000 | |
| 34 72 00.04 | Furnish and Install New #10 SCRRA RBM P.O. Turnout on Concrete Ties | EA | 2 | \$ 175,000 | \$ 350,000 | |
| 34 72 00.05 | Furnish and Install New #10 SCRRA RBM P.O. Crossver on Concrete Ties | EA | 1 | \$ 380,000 | \$ 380,000 | |
| 34 72 00.06 | Pedestal Pit Track | TF | 0 | \$ 550 | \$ - | |
| 34 72 00.07 | Bumping Post | EA | 2 | \$ 7,500 | \$ 15,000 | |
| 34 72 00.08 | Blue Flag Derail - Automatic | EA | 12 | \$ 12,500 | \$ 150,000 | |
| 34 72 00.09 | Track Collector Pan System | EA | 0 | \$ 50,000 | \$ - | Incl in Train Washer SF Cost |
| 34 80 11. | Railroad Bridges | | | | | |
| 34 80 11.01 | Single Track Single Span Steel Beam Bridge | LF | 30 | \$ 15,000 | \$ 450,000 | |
| TRANSPORTATION SUBTOTAL | | | | | \$ 11,886,966 | |
| SUBTOTAL CONSTRUCTION COST: | | | | | \$ 43,234,349 | |



Conceptual (5% DESIGN)

ENGINEER'S ESTIMATE

Project Name: Orange County Maintenance Facility Project
 Sub-Group: Phase 2
 Design Level: Concept
 Last Updated: 11-Jan-19

| ITEM NO. | WORK DESCRIPTION | UNIT | QUANTITY | UNIT COST | TOTAL COST | NOTES |
|---|---|------|----------|-----------|---------------------|-------|
| DIVISION 01 GENERAL REQUIREMENTS | | | | | | |
| 01 35 15. Maintenance and Protection of Traffic | | | | | | |
| 01 35 15.01 | Maintenance and Protection of Traffic, 0.5% of Bid | LS | 1 | 0.5% | \$ 122,565 | |
| 10 50 00. Temporary Facilities and Controls | | | | | | |
| 10 50 00.01 | Temporary Facilities and Controls, Maximum 6% of Bid | LS | 1 | 6% | \$ 1,470,781 | |
| 01 57 19. Temporary Environmental Controls | | | | | | |
| 01 57 19.01 | Install and Monitor SWPP Erosion Control BMP, 1% of Bid | LS | 1 | 1% | \$ 245,130 | |
| 01 71 13. Mobilization, Demobilization, and Controls | | | | | | |
| 01 71 13.01 | Mobilization, Demobilization, and Controls | LS | 1 | 3% | \$ 735,391 | |
| GENERAL REQUIREMENTS SUBTOTAL | | | | | \$ 2,573,867 | |
| DIVISION 02 DEMOLITION | | | | | | |
| 24100 Demolition | | | | | | |
| 02 41 00.01 | Track Removal | TF | 0 | \$ 50 | \$ - | |
| 02 41 00.02 | Remove Existing Asphalt Concrete Pavement | SF | 0 | \$ 3 | \$ - | |
| 02 41 00.03 | Remove Concrete Sidewalk | SF | 0 | \$ 5 | \$ - | |
| 02 41 00.04 | Remove Existing Curb & Gutter | LF | 0 | \$ 5 | \$ - | |
| 02 41 00.05 | Adjust Existing Utility to Grade | EA | 0 | \$ 1,500 | \$ - | |
| 02 41 00.06 | Miscellaneous Demolition and Removal | LS | 1 | \$ 5,000 | \$ 5,000 | |
| 02 41 00.07 | Remove Chainlink Fence | LF | 0 | \$ 8 | \$ - | |
| DEMOLITION SUBTOTAL | | | | | \$ 5,000 | |
| DIVISION 03 CONCRETE | | | | | | |
| 03 31 00. Concrete Structures | | | | | | |
| 03 31 00.01 | Culvert Headwall | CY | 0 | \$ 950 | \$ - | |
| 03 31 00.02 | Concrete Sidewalks | SF | 0 | \$ 12 | \$ - | |
| 03 31 00.03 | Cast-in-Place Concrete (Retaining Wall) | CY | 0 | \$ 1,200 | \$ - | |
| 03 31 00.04 | Culvert Encasement | CY | 0 | \$ 750 | \$ - | |
| 03 31 00.05 | Concrete Apron/Slab-on-grade | CY | 287 | \$ 350 | \$ 100,612 | |
| CONCRETE SUBTOTAL | | | | | \$ 100,612 | |
| DIVISION 10 SPECIALTIES | | | | | | |
| 10 14 53. Roadway (Traffic) Signage | | | | | | |
| 10 14 53.01 | Install Sign and Post | EA | 0 | \$ 750 | \$ - | |



Conceptual (5% DESIGN)

ENGINEER'S ESTIMATE

Project Name: Orange County Maintenance Facility Project
 Sub-Group: Phase 2
 Design Level: Concept
 Last Updated: 11-Jan-19

| ITEM NO. | WORK DESCRIPTION | UNIT | QUANTITY | UNIT COST | TOTAL COST | NOTES |
|--------------------------------------|---|------|----------|--------------|----------------------|---------------------------------------|
| 10 14 53.02 | Traffic Signals (Marine Way Intersection with Main Entrance Road) | EA | 0 | \$ 120,000 | \$ - | |
| SPECIALTIES SUBTOTAL | | | | | \$ - | |
| DIVISION 13 | SPECIAL CONSTRUCTION | | | \$ - | \$ - | |
| 13 00 00. | Buildings and Facilities | | | \$ - | \$ - | |
| 13 00 00.01 | Maintenance Building | SF | 37000 | \$ 550 | \$ 20,350,000 | |
| 13 00 00.02 | Utility Building | SF | 0 | \$ 300 | \$ - | |
| 13 00 00.03 | Train Wash Facility | LS | 0 | \$ 4,000,000 | \$ - | |
| 13 00 00.04 | Fueling and Sanding Facility, incl Support Structure and Piping | EA | 0 | \$ 2,250,000 | \$ - | |
| 13 00 00.05 | Service and Inspection Pits | CY | 0 | \$ 650 | \$ - | |
| 13 00 00.06 | Transportation/Administration Building | SF | 0 | \$ 350 | \$ - | |
| 13 00 00.07 | Material Storage Compound | SF | 6000 | \$ 8 | \$ 48,000 | |
| 13 00 00.08 | Equipment Storage Compound | SF | 9600 | \$ 8 | \$ 76,800 | |
| SPECIAL CONSTRUCTION SUBTOTAL | | | | | \$ 20,474,800 | |
| DIVISION 26 | ELECTRICAL | | | | | |
| 26 13 00. | Conduits, Raceway, and Boxes | | | | | |
| 26 13 00.01 | Electrical Manholes | EA | 0 | \$ 1,500 | \$ - | |
| 26 13 00.02 | Conduits and Conductors - Exterior Lighting | LF | 0 | \$ 20 | \$ - | |
| 26 13 00.03 | Conduits and Conductors - Wayside Power | LF | 1200 | \$ 20 | \$ 24,000 | |
| 26 23 00. | Switchgear and Transformers | | | | | Power for Bldgs incl in Bldg SF Costs |
| 26 23 00.01 | 12.47 kV Switchgear (incl grounding system) | EA | 0 | \$ 200,000 | \$ - | |
| 26 23 00.02 | 300 KVA Transformer, 12.47KV-480/277V-3P-4W-WP + PAD (incl GGS) | EA | 0 | \$ 120,000 | \$ - | |
| 26 23 00.03 | 750 KVA Transformer, 12.47KV-480/277V-3P-4W-WP + PAD (incl GGS) | EA | 0 | \$ 175,000 | \$ - | |
| 26 23 00.04 | 12.47KV Unit Substation, 480/277V-3P-4W-WP | EA | 0 | \$ 500,000 | \$ - | |
| 26 23 00.05 | Wayside Distribution Panel, 1600A-3P-4W-480/277V | EA | 0 | \$ 95,000 | \$ - | |
| 26 23 00.06 | Wayside Distribution Panel, 4000A-3P-4W-480/277V | EA | 0 | \$ 150,000 | \$ - | |
| 26 51 00. | Interior Lighting | | | | | |
| 26 51 00.01 | Interior Lighting | EA | 0 | \$ 10,000 | \$ - | Incl. in Bulding SF Costs |
| 26 56 00. | Exterior Lighting | | | | | |
| 26 56 00.01 | Install Public Street Light Pole | EA | 0 | \$ 8,500 | \$ - | |
| 26 56 00.02 | Install Circulation and Parking Lot Light Pole - 15' high | EA | 14 | \$ 5,000 | \$ 70,000 | |
| 26 56 00.03 | Install Storage Yard Light Pole - 25' high | EA | 0 | \$ 7,500 | \$ - | |
| ELECTRICAL SUBTOTAL | | | | | \$ 94,000 | |



Conceptual (5% DESIGN)

ENGINEER'S ESTIMATE

Project Name: Orange County Maintenance Facility Project
 Sub-Group: Phase 2
 Design Level: Concept
 Last Updated: 11-Jan-19

| ITEM NO. | WORK DESCRIPTION | UNIT | QUANTITY | UNIT COST | TOTAL COST | NOTES |
|--|--|------|----------|-----------|-------------------|-------|
| DIVISION 31 EARTHWORK | | | | | | |
| 31 11 00. | Site Clearing | | | | | |
| 31 11 00.01 | Site Clearing | AC | 2 | \$ 7,500 | \$ 15,000 | |
| 31 20 00. | Earthwork | | | | | |
| 31 20 00.01 | Earthwork - Grading | CY | 11667 | \$ 20 | \$ 233,340 | |
| 31 20 00.02 | Embankment - Imported Fill | CY | 8889 | \$ 25 | \$ 222,225 | |
| 31 20 00.03 | Structural Backfill | CY | 500 | \$ 55 | \$ 27,500 | |
| EARTHWORK SUBTOTAL | | | | | \$ 498,065 | |
| DIVISION 32 EXTERIOR IMPROVEMENTS | | | | | | |
| 32 12 00. | Hot Mix Asphalt (HMA) Pavement | | 1 | | | |
| 32 12 00.01 | 6" AC Pavement Over Primecoat and 8" CAB | SF | 58484 | \$ 8 | \$ 467,872 | |
| 32 12 00.02 | 4" AC Pavement Over Primecoat and 6" CAB | SF | 9876 | \$ 5 | \$ 49,380 | |
| 32 16 00. | Curbs, Gutters, and Sidewalks | | | | | |
| 32 16 00.01 | 6" PCC Curb and Gutter Over 4" CMB | LF | 0 | \$ 55 | \$ - | |
| 32 16 00.02 | 6" PCC Curb Over 4" CMB | LF | 1800 | \$ 40 | \$ 72,000 | |
| 32 17 13. | Paving Specialties | | | | | |
| 32 17 13.01 | Install Painted Lines and Markings | LS | 1 | \$ 5,000 | \$ 5,000 | |
| 32 31 13. | Chain Link Fencing and Gates | | | | | |
| 32 31 13.01 | 6' High Chain Link Fence | LF | 0 | \$ 80 | \$ - | |
| 32 31 13.02 | 6' High Chain Link Double Swing Gate | EA | 0 | \$ 750 | \$ - | |
| 32 32 16. | Gravity Block Retaining Walls | | | | | |
| 32 32 16.01 | Gravity Block Retaining Walls | SF | 0 | \$ 60 | \$ - | |
| 32 80 00. | Irrigation System | | | | | |
| 32 80 00.01 | Irrigation System | LS | 1 | \$ 65,000 | \$ 65,000 | |
| 32 90 00. | Landscaping | | | | | |
| 32 90 00.01 | Landscaping | LS | 1 | \$ 70,000 | \$ 70,000 | |
| 32 91 00. | Soil Erosion, Sediment Control, Top Soiling and Seeding | | | | | |
| 32 91 00.01 | Vegetated Swale | SF | 0 | \$ 6 | \$ - | |
| 32 91 00.02 | Riprap | CY | 0 | \$ 75 | \$ - | |



Conceptual (5% DESIGN)

ENGINEER'S ESTIMATE

Project Name: Orange County Maintenance Facility Project
 Sub-Group: Phase 2
 Design Level: Concept
 Last Updated: 11-Jan-19

| ITEM NO. | WORK DESCRIPTION | UNIT | QUANTITY | UNIT COST | TOTAL COST | NOTES |
|---------------------------------------|--|------|----------|------------|-------------------|--|
| EXTERIOR IMPROVEMENTS SUBTOTAL | | | | | \$ 729,252 | |
| DIVISION 33 | UTILITIES | | | | | |
| 33 00 00. | Utility Allowance | | | | | |
| 33 00 00.01 | Utility Allowance | LS | 1 | \$ 50,000 | \$ 50,000 | |
| 33 00 00.02 | Relocate Reclaimed Water Line - 8" Dia. | LF | 0 | \$ 150 | \$ - | |
| 33 10 00. | Water Utilities | | | | | |
| 33 10 00.01 | Domestic Water Service POC | EA | 0 | \$ 7,500 | \$ - | |
| 33 10 00.02 | Domestic Water Service - 6" Dia. | LF | 200 | \$ 125 | \$ 25,000 | For main shop building |
| 33 10 00.03 | Domestic Water for Train Service - 2" Dia. | LF | 0 | \$ 75 | \$ - | |
| 33 10 00.04 | Backflow Preventer | EA | 0 | \$ 10,000 | \$ - | |
| 33 10 00.05 | Train Service Hose Bibs | EA | 0 | \$ 1,000 | \$ - | |
| 33 10 00.06 | Miscellaneous Water Accessories (Valves, Specialties) | LS | 0.5 | \$ 20,000 | \$ 10,000 | |
| 33 10 00.07 | Relocate Groundwater Monitoring Well | EA | 0 | \$ 10,000 | \$ - | |
| 33 10 00.08 | Fire Water Service POC | EA | 0 | \$ 7,500 | \$ - | |
| 33 10 00.09 | Domestic Water Service - 8" Dia. | LF | 0 | \$ 160 | \$ - | |
| 33 10 00.1 | Fire Hydrant | EA | 0 | \$ 8,000 | \$ - | |
| 33 10 00.11 | Miscellaneous Fire Water Accessories (Valves, Specialties) | LS | 0 | \$ 10,000 | \$ - | |
| 33 30 00. | Sanitary Sewerage | | | | | |
| 33 30 00.01 | Sanitary Sewer POC | EA | | \$ 7,500 | \$ - | |
| 33 30 00.02 | Sanitary Sewer - Main Lateral to Street - 8" Dia. | LF | 500 | \$ 115 | \$ 57,500 | Add bulding sanitary to yard sanitary line |
| 33 30 00.03 | Sanitary Sewer - Yard Service - 4" Dia. | LF | | \$ 75 | \$ - | |
| 33 30 00.04 | Sanitary Manholes | EA | 2 | \$ 7,500 | \$ 15,000 | |
| 33 30 00.05 | Oil Water Separator | EA | | \$ - | \$ - | |
| 33 40 00. | Storm Drainage Utilities | | | | | |
| 33 40 00.01 | Culvert Extension 12" RCP | LF | 0 | \$ 150 | \$ - | |
| 33 40 00.02 | Storm Drain Line - 24" RCP | LF | 1635 | \$ 175 | \$ 286,125 | |
| 33 40 00.03 | Storm Drain Manholes | EA | 4 | \$ 8,000 | \$ 32,000 | |
| 33 40 00.04 | Storm Drain Inlets | EA | 6 | \$ 6,000 | \$ 36,000 | |
| 33 40 00.05 | Infiltration Ditches for WQMP | SF | 0 | \$ 15 | \$ - | |
| 33 40 00.06 | Storm Water Treatment (Filter) System | EA | 0 | \$ 100,000 | \$ - | Incl. In Phase 1 |
| 33 46 00. | Underdrains | | | | | |
| 33 46 00.01 | Track Underdrain - 8" Dia Perforated PVC | LF | 800 | \$ 85 | \$ 68,000 | |
| 33 46 00.02 | Cleanouts | EA | 4 | \$ 1,000 | \$ 4,000 | |
| 35 65 00. | Compressed Air | | | | | |
| 35 65 00.01 | Yard Air Compressor System | EA | 0 | \$ 150,000 | \$ - | |



Conceptual (5% DESIGN)

ENGINEER'S ESTIMATE

Project Name: Orange County Maintenance Facility Project
 Sub-Group: Phase 2
 Design Level: Concept
 Last Updated: 11-Jan-19

| ITEM NO. | WORK DESCRIPTION | UNIT | QUANTITY | UNIT COST | TOTAL COST | NOTES |
|------------------------------------|--|------|----------|--------------|----------------------|------------------------------|
| 35 65 00.02 | Yard Air Piping - 3" Dia. | LF | 0 | \$ 300 | \$ - | |
| 35 65 00.03 | Yard Air Service Points | EA | 0 | \$ 1,000 | \$ - | |
| UTILITIES SUBTOTAL | | | | | \$ 583,625 | |
| DIVISION 34 TRANSPORTATION | | | | | | |
| 34 42 00. Railroad Signals | | | | | | |
| 34 42 00.01 | Track Signal Work | LS | 0 | \$ - | \$ - | |
| 34 42 00.02 | New Control Point | LS | 0 | \$ 1,800,000 | \$ - | |
| 34 42 00.03 | Positive Train Control System Configuration Updates | LS | 0 | \$ 500,000 | \$ - | |
| 34 11 26. Ballast | | | | | | |
| 34 11 26.01 | Furnish, Place and Compact Ballast | CY | 4675 | \$ 40 | \$ 187,007 | |
| 34 11 27. Subballast | | | | | | |
| 34 11 27.01 | Furnish, Place and Compact Sub-Ballast | CY | 1940 | \$ 50 | \$ 97,012 | |
| 34 72 00. Trackwork | | | | | | |
| 34 72 00.01 | Furnish and Install New Track - 136# CWR + Conc Ties - incl rail, ballast, ties, OTM | TF | 4786 | \$ 275 | \$ 1,316,150 | |
| 34 72 00.02 | Remove and Salvage Mainline Track and Deliver to SCRRA | TF | 0 | \$ 80 | \$ - | |
| 34 72 00.03 | Furnish and Install New #8 Tangential SCRRA Manual Turnout on Concrete Ties | EA | 3 | \$ 125,000 | \$ 375,000 | |
| 34 72 00.04 | Furnish and Install New #10 SCRRA RBM P.O. Turnout on Concrete Ties | EA | 0 | \$ 175,000 | \$ - | |
| 34 72 00.05 | Furnish and Install New #10 SCRRA RBM P.O. Crossver on Concrete Ties | EA | 0 | \$ 380,000 | \$ - | |
| 34 72 00.06 | Pedestal Pit Track | TF | 0 | \$ 550 | \$ - | |
| 34 72 00.07 | Bumping Post | EA | 1 | \$ 7,500 | \$ 7,500 | |
| 34 72 00.08 | Blue Flag Derail - Automatic | EA | 4 | \$ 12,500 | \$ 50,000 | |
| 34 72 00.09 | Track Collector Pan System | EA | 0 | \$ 50,000 | \$ - | Incl. in Trainwasher SF Cost |
| 34 80 11. Railroad Bridges | | | | | | |
| 34 80 11.01 | Single Track Single Span Steel Beam Bridge | LF | 0 | \$ 15,000 | \$ - | |
| TRANSPORTATION SUBTOTAL | | | | | \$ 2,032,669 | |
| SUBTOTAL CONSTRUCTION COST: | | | | | \$ 27,091,891 | |

ATTACHMENT B
TRACK CHARTS – ORANGE SUBDIVISION MP 183.0 TO MP 185.0

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CARLOSA

LEGEND

STRUCTURE

- HMAC XING SURFACE
- CONCRETE PANEL XING SURFACE
- RUBBER PANEL XING SURFACE
- AT-GRADE CROSSING
- TUNNEL
- CULVERT
- OVERPASS
- BRIDGE

TRACK

- SCRRRA MAINLINE CTC/PTC
- SCRRRA TRACK NML
- SCRRRA MAINLINE NON-PTC
- LIGHT RAIL TRANSIT
- UPRR TRACK
- BNSF TRACK
- CONNECTING SUB.

PTC CRITICAL FEATURES

- SIGNAL CANTILEVER
- SIGNAL BRIDGE
- BRACKET SIGNAL
- DWARF SIGNAL
- SIGNAL W/ ONE HEAD
- SIGNAL W/ TWO HEADS
- SIGNAL W/ THREE HEADS
- CLR PT (REVERSE ONLY)
- PTC LIMIT
- HAND OPERATED SWITCH
- POWER OPERATED SWITCH
- ELECTRIC LOCK SWITCH
- POWER OPERATED DERAIL
- AT-GRADE CROSSING LIMIT
- WESTBOUND SPEED INCREASE
- EASTBOUND SPEED INCREASE
- 20 MILEPOST MARKER
- QUIET ZONE

OTHER TRACK FEATURES

- STANDARD 8A - CANTILEVERED FLASHING LIGHT
- STANDARD 9A - CANTILEVERED FLASHING LIGHT WITH GATE
- STANDARD 9 - FLASHING LIGHT WITH GATE
- STANDARD 9E - FLASHING LIGHT WITH GATE ON EXIT SIDE
- STANDARD 8 - DUAL FLASHING LIGHTS
- STANDARD 8 - SIGNAL FLASHING LIGHT
- MODIFIED STANDARD 9 - PEDESTRIAN GATE
- STANDARD 1R - CROSSBUCK
- STANDARD 1X - PRIVATE CROSSING SIGN
- SIGNAL HOUSE
- WAYSIDE HORN

LUBRICATOR & DETECTORS

- RAIL LUBRICATOR
- DRAWING EQUIPMENT
- HOT BOX
- HIGH WIDE LOAD
- HIGH WATER
- SLIDE FENCE

TRACK GEOMETRY AND MAXIMUM AUTHORIZED SPEEDS

MILEPOST LIMIT OF SPEED CHANGE: 9.8

60/40: TOTAL LENGTH OF CURVE INCLUDING SPIRALS, LENGTH OF SPIRAL, DEGREE OF CURVATURE, ACTUAL SUPERELEVATION, PASSENGER/FREIGHT SPEED PER TIMETABLE

60#/40: HIGH WIND RESTRICTION FOR PASSENGER, V_{pass} CALCULATED AT 3.5" UNBALANCE, V_{frt} CALCULATED AT 2" UNBALANCE

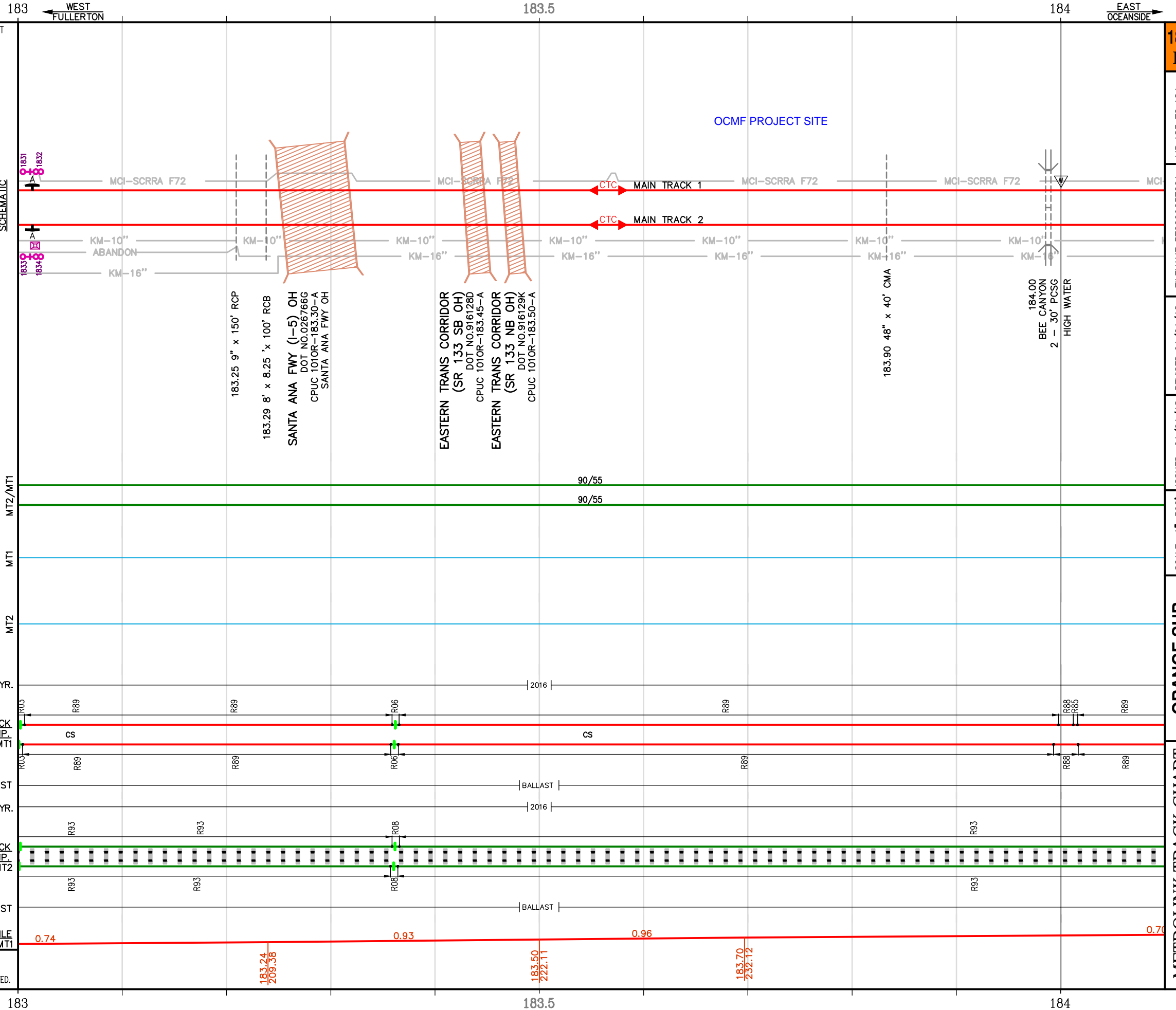
TRACK COMPOSITION

- R99 YEAR RAIL ROLLED
- INSULATED JOINT
- WELD JOINT
- BOLT JOINT
- WOOD TIE WITH CUT SPIKE
- WOOD TIES WITH FAST CLIP
- WOOD TIES WITH PANDROL CLIP
- CONCRETE TIE WITH FAST CLIP
- CONCRETE TIE WITH MCKAY
- CONCRETE TIE WITH PANDROL CLIP
- STEEL TIE WITH PANDROL CLIP
- 136RE, JOINTED
- 136RE, CWR
- 133RE, JOINTED
- 133RE, CWR
- 132HF, JOINTED
- 132HF, CWR
- 119RE OR LOWER, JOINTED
- 119RE OR LOWER, CWR

I/R PROFILE**

MP ELEV. MP ELEV.

**VERTICAL DATUM BASED ON NAVD 88



183 B

MP 183 TO 184

FILENAME: PTC2090RTC01

ISSUED: 01/01/18

REVISED: 01/01/18

SCALE: 1"=500'

ORANGE SUB

METROLINK TRACK CHART

183
A

SAND CANYON AVE
MP 183 TO 184

FILENAME: PTC2090RVR001

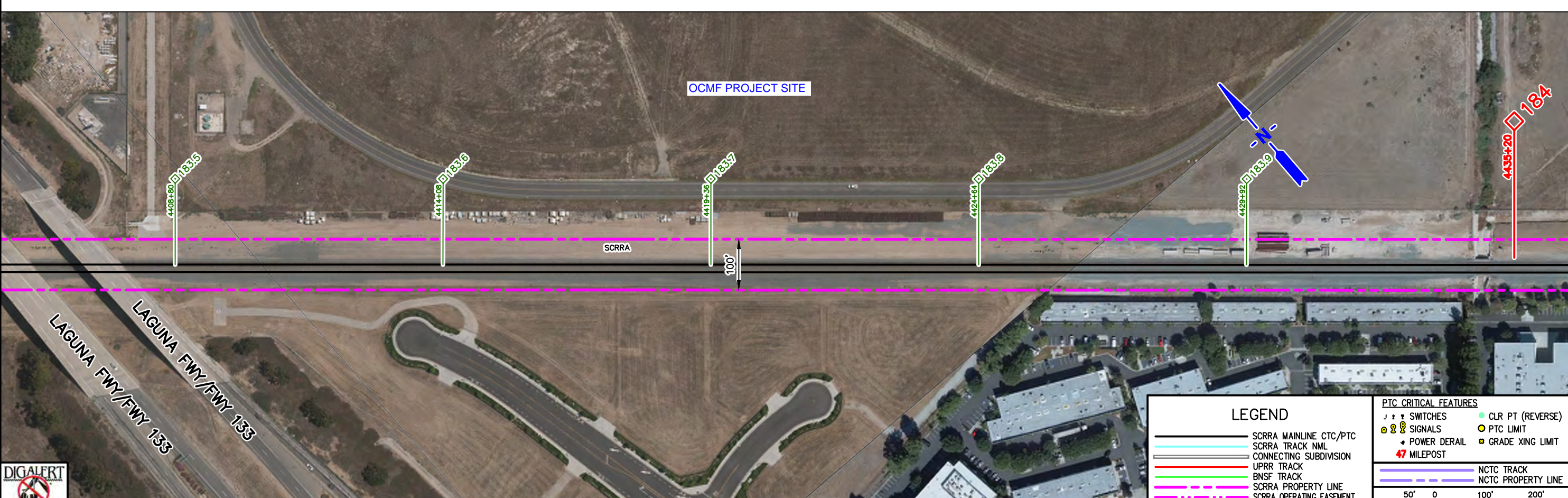
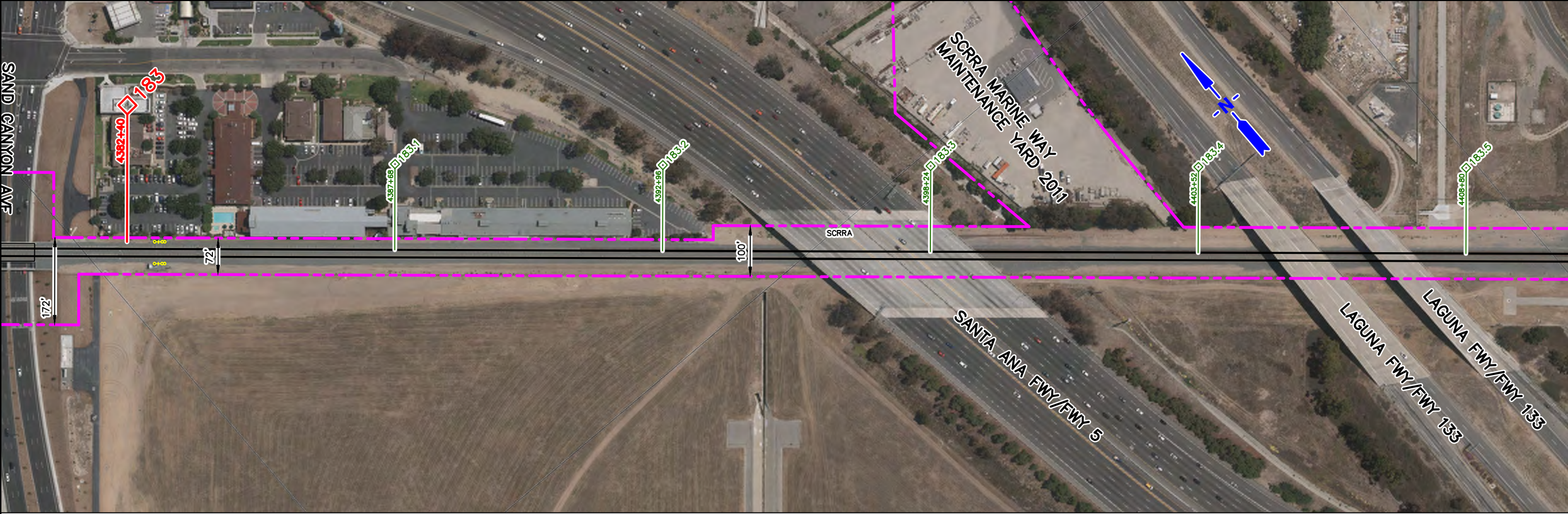
REVISED: 01/01/18

ISSUED: 01/01/18

SCALE: 1" = 200'

REVISIONS OR RECOMMENDATIONS:
scrracrm@scrra.net

ORANGE SUB CORRIDOR MAP



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| LEGEND | | PTC CRITICAL FEATURES | |
|--------|---------------------------|-----------------------|------------------------|
| | SCRRRA MAINLINE CTC/PTC | | CLR PT (REVERSE) |
| | SCRRRA TRACK NML | | PTC LIMIT |
| | CONNECTING SUBDIVISION | | GRADE XING LIMIT |
| | UPRR TRACK | | MILEPOST |
| | BNSF TRACK | | NCTC TRACK |
| | SCRRRA PROPERTY LINE | | NCTC PROPERTY LINE |
| | SCRRRA OPERATING EASEMENT | | GRAPHIC SCALE: 1"=200' |
| | UPRR PROPERTY LINE | | |

METROLINK MP 165.40 FULLERTON JCT. TO MP 212.40 COUNTY LINE - AERIAL PHOTO MAP OF JOINT FACILITY TRACKAGE FLIGHT DATE: OCT. 24, 2012

Jan 02, 2018 - 7:35am S:\Track Chertak\B-RW-Mega\B5-Orange-01w\PTC2090RVR001.dwg

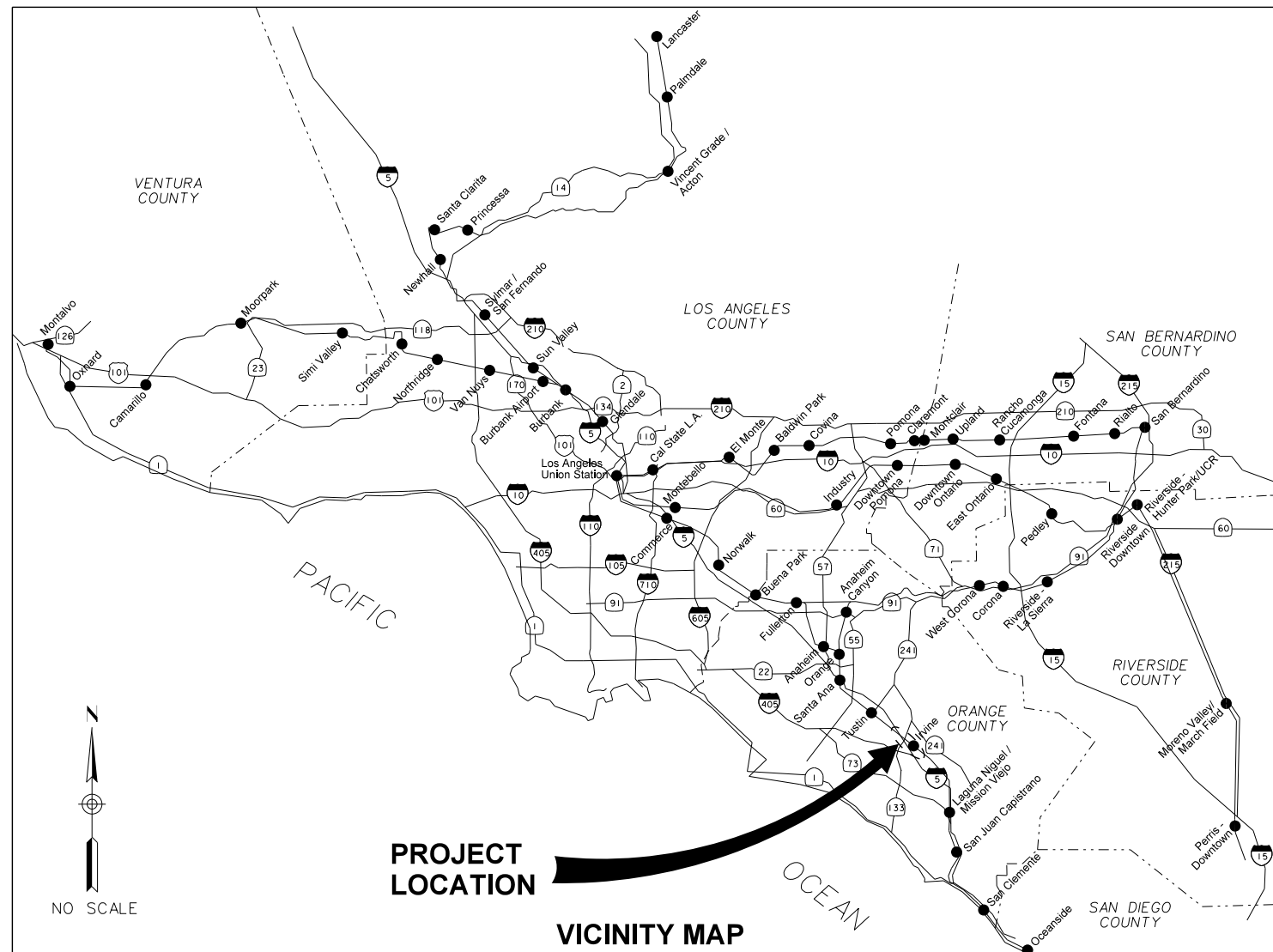
ATTACHMENT C
PROJECT CONCEPT PLANS

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METROLINK

SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY METROLINK ORANGE COUNTY MAINTENANCE FACILITY PROJECT



NOVEMBER 2, 2018

5% SUBMITTAL
NOT FOR CONSTRUCTION

CONTRACT No. _____



APPROVED BY: _____ DATE: _____
 JUSTIN FORNELLI, P.E.
 DIRECTOR OF ENGINEERING & CONSTRUCTION

SUBMITTED BY: _____ DATE: _____
 MARK PETERSON
 PROJECT MANAGER



SHEET DRAWING DRAWING TITLE

GENERAL

| | | |
|---|--------|---------------------|
| 1 | GI-001 | COVER SHEET |
| 2 | GI-002 | INDEX OF DRAWINGS |
| 3 | GI-010 | LEGENDS AND SYMBOLS |
| 4 | GI-011 | ABBREVIATIONS |
| 5 | GI-012 | GENERAL NOTES |

TRACK

| | | |
|----|--------|--|
| 6 | CK-021 | TYPICAL SECTIONS • SHEET 1 OF 3 |
| 7 | CK-022 | TYPICAL SECTIONS • SHEET 2 OF 3 |
| 8 | CK-023 | TYPICAL SECTIONS • SHEET 3 OF 3 |
| 9 | CK-101 | TRACK PLAN AND PROFILE • SHEET 1 OF 2 |
| 10 | CK-102 | TRACK PLAN AND PROFILE • SHEET 2 OF 2 |
| 11 | CK-103 | OCMF SITE PLAN • SHEET 1 OF 2 |
| 12 | CK-104 | OCMF SITE PLAN • SHEET 2 OF 2 |
| 13 | CK-202 | OCMF SITE PLAN • PHASE 1 LAYOUT • SHEET 1 OF 2 |
| 14 | CK-203 | OCMF SITE PLAN • PHASE 2 LAYOUT • SHEET 2 OF 2 |

STRUCTURAL

| | | |
|----|--------|--|
| 15 | SB-101 | BEE CANYON CHANNEL BRIDGE • SHEET 1 OF 1 |
|----|--------|--|

UTILITIES

| | | |
|----|--------|---------------------------------------|
| 16 | CU-101 | COMPOSITE UTILITY PLAN • SHEET 1 OF 5 |
| 17 | CU-102 | COMPOSITE UTILITY PLAN • SHEET 2 OF 5 |
| 18 | CU-103 | COMPOSITE UTILITY PLAN • SHEET 3 OF 5 |
| 19 | CU-104 | COMPOSITE UTILITY PLAN • SHEET 4 OF 5 |
| 20 | CU-105 | COMPOSITE UTILITY PLAN • SHEET 5 OF 5 |

ARCHITECTURAL

| | | |
|----|--------|---|
| 21 | AA-100 | MAINTENANCE BUILDING • OVERALL FLOOR PLAN • SHEET 1 OF 6 |
| 22 | AB-100 | TRANSPORTATION BUILDING • OVERALL FLOOR PLAN • SHEET 2 OF 6 |
| 23 | AC-100 | UTILITY BUILDING • OVERALL FLOOR PLAN • SHEET 3 OF 6 |
| 24 | AD-100 | SERVICE AND INSPECTION AREA • OVERALL FLOOR PLANS • SHEET 4 OF 6 |
| 25 | AD-101 | SERVICE AND INSPECTION AREA • ENLARGED FLOOR PLANS • SHEET 5 OF 6 |
| 26 | AF-100 | TRAIN WASH • OVERALL FLOOR PLAN • SHEET 6 OF 6 |

\$USERS
 \$TIMES
 \$DATE
 \$REV
 \$SHEET NO
 \$TOTAL SHEETS

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DESIGNED BY
J. MOLINA
 DRAWN BY
J. MOLINA
 CHECKED BY
S. MAGALLON
 APPROVED BY
A. SOKOL
 DATE
11-02-2018




SUBMITTED: _____
PROJECT MANAGER
 APPROVED: _____







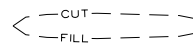



**METROLINK ORANGE COUNTY
MAINTENANCE FACILITY PROJECT**

INDEX OF DRAWINGS


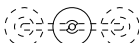


| | |
|--------------------|-----------|
| CONTRACT NO. | |
| DRAWING NO. GI-002 | |
| REVISION | SHEET NO. |
| | 2 OF 26 |
| SCALE NONE | |

| REV. | DATE | BY | SUB. | APP. |
|------|------|----|------|------|
|------|------|----|------|------|











TRACK

-  PROPOSED TRACK
-  EXISTING TRACK
-  PROPOSED POINT OF SWITCH (POWER-OPERATED TURNOUT)
-  85' LONG COACH
-  LOCOMOTIVE
-  OCTA RIGHT-OF-WAY
-  PROPOSED LIMIT OF GRADING
-  TRACK SIGNAL
-  SIGNAL HOUSE
-  GRAVITY BLOCK RETAINING WALL
















ARCHITECTURAL

-  SINGLE LUMINAIRE
-  BACK TO BACK LUMINAIRE
-  FIXED BOLLARD
-  REMOVABLE BOLLARD

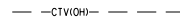
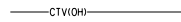
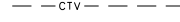









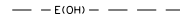
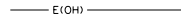














CIVIL

-  AC PAVEMENT FOR GRADE CROSSING PER SCRRA ES4001
-  2" MIN GRIND AND OVERLAY
-  AC PAVEMENT PER COA STD 160-A
-  ASPHALT PAVEMENT, GRIND AND OVERLAY
-  BALLAST
-  CONCRETE APRON
-  FLOW LINE
-  RETAINING WALL
-  PROPOSED ROADWORK
-  6 FT HIGH CHAINLINK FENCE

SURVEY

-  POWER POLE
-  GUY ANCHOR
-  LIGHT POLE
-  SIGN
-  RAILROAD GATE
-  TEST PIT
-  GAS VALVE
-  WATER VALVE
-  TREE
-  DIAMETER
-  PALM TREE
-  CONTROL POINT
-  MANHOLE
-  FIRE HYDRANT
-  INTERMEDIATE SIGNAL

UTILITIES

| | EXISTING | PROPOSED | |
|--|---|---|-----------------------|
| |  |  | CABLE TV OVERHEAD |
| |  |  | CABLE TV UNDERGROUND |
| |  |  | COMMUNICATION |
| |  |  | FIBER OPTIC |
| |  |  | FUEL GAS |
| |  |  | LIGHTING |
| |  |  | NATURAL GAS |
| |  |  | POWER OVERHEAD |
| |  |  | POWER UNDERGROUND |
| |  |  | SANITARY SEWER |
| |  |  | STORM DRAIN |
| |  |  | TELEPHONE OVERHEAD |
| |  |  | TELEPHONE UNDERGROUND |
| |  |  | WATER |

NOTE:
ALL SYMBOLS SHOWN ARE NOT NECESSARILY USED ON THIS PROJECT

\$USERS
 \$TIMES
 \$DATE
 \$REV
 \$SHEET NO
 \$TOTAL SHEETS

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DESIGNED BY
J. MOLINA
 DRAWN BY
J. MOLINA
 CHECKED BY
S. MAGALLON
 APPROVED BY
A. SOKOL
 DATE
11-02-2018



SUBMITTED: _____
PROJECT MANAGER
 APPROVED: _____

**METROLINK ORANGE COUNTY
MAINTENANCE FACILITY PROJECT**

LEGENDS AND SYMBOLS

| | |
|--------------------|-------------------|
| CONTRACT NO. | |
| DRAWING NO. GI-010 | |
| REVISION | SHEET NO. 3 OF 26 |
| SCALE NONE | |

ABBREVIATIONS

| | | | | | |
|----------------|---|---------|---|------------|--|
| & | AND | HDPE | HIGH-DENSITY POLYETHYLENE | S | SOUTH, SOUTHERLY, SLOPE |
| @ | AT | HMA | HOT-MIX ASPHALT | SC | SPIRAL TO CURVE |
| ' | FOOT, FEET, MINUTE(S) | HMAC | HOT-MIX ASPHALT CONCRETE | SCE | SOUTHERN CALIFORNIA EDISON |
| " | INCH, INCHES, SECOND(S) | HORIZ | HORIZONTAL | SCG | SOUTHERN CALIFORNIA GAS COMPANY |
| % | PERCENT | HW | HEADWALL | SCRRA | SOUTHERN CALIFORNIA REGIONAL RAIL AUTHORITY |
| * | POUND, NUMBER | HT | HAND THROW | SD | STORM DRAIN |
| Δ | DELTA (ANGLE) | HTTO | HAND THROW TURNOUT | SDMH | STORM DRAIN MANHOLE |
| * | ASTERISK, PRESTRESSED CONCRETE FASCIA GIRDER MARK | | | SDNG | SIDING TRACK |
| AC | ASPHALT CONCRETE | IND | INDUSTRY TRACK | SHT | SHEET |
| ADA | AMERICAN DISABILITIES ACT | INV | INVERT | SIG | SIGNAL |
| AGG | AGGREGATE | IP | IRON PIPE | SMSR | SOLID MANGANESE SPRING RAIL |
| AP | ANGLE POINT | | | SO | SOUTHERN |
| APPROX | APPROXIMATELY | L | LENGTH | SPA | SPACING |
| AVE | AVENUE | LH | LEFT HAND | SPPWC | STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION |
| BB | BEGINNING OF BRIDGE | LOL | LAYOUT LINE | SMMH | SANITARY SEWER MANHOLE |
| BC | BEGINNING OF CURVE | LT | LEFT, LEAD TRACK | ST | SPIRAL TO TANGENT, STREET |
| BEG | BEGIN or BEGINNING | Ls | LENGTH OF SPIRAL | STA | STATION |
| BLVD | BOULEVARD | | | STD | STANDARD |
| B/R | BOTTOM OF RAIL | MAX | MAXIMUM | STRUCT | STRUCTURE |
| CB | CATCH BASIN | MED | MEDIAN | T | TANGENT |
| CA, CAL | CALIFORNIA | MIN | MINIMUM | T/C | TRACK CENTER(S) |
| CAL TRANS | CALIFORNIA DEPARTMENT OF TRANSPORTATION | ML | MAINLINE | TC | TOP OF CURB |
| CIDH | CAST IN DRILLED HOLES | MP | MILEPOST | TG | TOP OF GRATE |
| CIP | CAST IRON PIPE, CAST IN PLACE | MTRK | MAIN TRACK | TO | TURNOUT |
| CL | CENTERLINE | | | TOT | TOTAL |
| CLR | CLEAR, CLEARANCE | N | NORTH, NORTHERLY, NORTHING | T/R | TOP OF RAIL |
| CMP | CORRUGATED METAL PIPE | NF | NEAR FACE | TR | TAPERED RAIL |
| CMPA | CORRUGATED METAL PIPE (ARCH) | NIC | NOT IN CONTRACT | TRK | TRACK |
| CO | CLEAN OUT | NO | NUMBER, NORTHERN | TS | TANGENT TO SPIRAL |
| COMM | COMMUNICATION | NTS | NOT TO SCALE | TYP, (TYP) | TYPICAL |
| COMP | COMPROMISE JOINT | N/A | NOT APPLICABLE | | |
| CONC | CONCRETE | OC, O/C | ON CENTER | UD | UNDERDRAIN |
| CP | CONTROL POINT | OCTA | ORANGE COUNTY TRANSPORTATION AUTHORITY | UP | UNDERPASS |
| CG | CURB AND GUTTER | OD | OUTSIDE DIAMETER | UPRR | UNION PACIFIC RAILROAD |
| CS | CURVE TO SPIRAL | OG | ORIGINAL GROUND | | |
| CSP | CORRUGATED STEEL PIPE | OP | OVERPASS | V | SPEED |
| CPUC, PUC | CALIFORNIA PUBLIC UTILITIES COMMISSION | PB | PULLBOX | Vf | SPEED OF FREIGHT |
| | | PC | POINT OF CURVATURE | Vp | SPEED OF PASSENGER |
| | | PCC | POINT OF COMPOUND CURVATURE | VERT | VERTICAL |
| | | PC/PS | PRECAST PRESTRESSED | | |
| Dc | DEGREE OF CURVATURE (CHORD DEFINITION) | PED | PEDESTRIAN | W | WEST, WESTERLY |
| DESC | DESCRIPTION | PERF | PERFORATED | W/ | WITH |
| DI | DRAINAGE INLET | PH | POT HOLE | WFEBW | WEST FACE OF EAST BACK WALL |
| DIA, Ø | DIAMETER | PI | POINT OF INTERSECTION | WWM | WELDED WIRE MESH |
| DR | DRIVE | PITO | POINT OF INTERSECTION OF TURNOUT | | |
| DWG | DRAWING | PL | PLACE | | |
| (E), EX, EXIST | EXISTING | PO | POWER OPERATED | | |
| E | EAST, EASTERLY, EASTING, EXPANSION END | POB | POINT OF BEGINNING | | |
| E ₀ | SUPERELEVATION (ACTUAL) | POC | POINT ON CURVE | | |
| EB | END OF BRIDGE | POE | POINT OF ENDING | | |
| EC | END OF CURVE | POT | POINT ON TANGENT | | |
| EF | EACH FACE | POTO | POWER OPERATED TURNOUT | | |
| EFWBW | EAST FACE OF WEST BACK WALL | PRC | POINT OF REVERSE CURVATURE | | |
| EG | EXISTING GRADE | PROP | PROPOSED | | |
| ELEC | ELECTRIC, ELECTRICAL | PS | POINT OF SWITCH | | |
| EL, ELEV | ELEVATION | PVC | POINT OF VERTICAL CURVE, POLYVINYL CHLORIDE | | |
| ESMT | EASEMENT | PVI | POINT OF VERTICAL INTERSECTION | | |
| Eu | SUPERELEVATION (UNBALANCED) | PVT | POINT OF VERTICAL TANGENT | | |
| F | FIXED END | R | RADIUS | | |
| FES | FLARED END SECTION | RBM | RAILBOUND MANGANESE | | |
| FF | FAR FACE | RCB | REINFORCED CONCRETE BOX | | |
| FG | FINISHED GRADE | RCP | REINFORCED CONCRETE PIPE | | |
| *FG* | FASCIA GIRDER NUMBER | REQ'D | REQUIRED | | |
| FL | FLOW LINE | RPM | RAISED PAVEMENT MARKER | | |
| FO | FIBER OPTIC | RR | RAILROAD | | |
| FRA | FEDERAL RAILROAD ADMINISTRATION | RSP | ROCK SLOPE PROTECTION | | |
| FS | FINISHED SURFACE | RT | RIGHT | | |
| FT | FOOT, FEET | RH | RIGHT HAND | | |
| | | R/W | RIGHT-OF-WAY | | |
| GALV | GALVANIZED | | | | |
| GB | GRADE BREAK | | | | |

\$USERS
 \$TIMES
 \$DATE
 \$REVLS
 \$PLOTORVLS

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DESIGNED BY
J. MOLINA

DRAWN BY
J. MOLINA

CHECKED BY
S. MAGALLON

APPROVED BY
A. SOKOL

DATE
11-02-2018



SUBMITTED: _____
PROJECT MANAGER

APPROVED: _____

METROLINK ORANGE COUNTY MAINTENANCE FACILITY PROJECT

ABBREVIATIONS

| | |
|--------------|-----------|
| CONTRACT NO. | |
| DRAWING NO. | GI-011 |
| REVISION | SHEET NO. |
| | 4 OF 26 |
| SCALE | NONE |

GENERAL NOTES

- THE CONTRACTOR SHALL COMPLY WITH ALL LOCAL, STATE, AND FEDERAL SAFETY CODES, REGULATIONS, AND SPECIFICATIONS FOR THIS CONTRACT.
- ALL CONSTRUCTION ACTIVITIES SHALL BE SCHEDULED AND COORDINATED WITH THE ENGINEER AND THE VARIOUS COMPANIES, AGENCIES, AND OTHER CONTRACTORS WHO MAY BE AFFECTED BY THIS WORK.
- HORIZONTAL AND VERTICAL CONTROL POINTS FOR THE SITE LAYOUT ARE IDENTIFIED IN THE CONTRACT DOCUMENTS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO UTILIZE THESE CONTROL POINTS TO ASSURE THAT ALL FACILITIES INCLUDED IN PROJECT ARE CONSTRUCTED AT THE CORRECT HORIZONTAL AND VERTICAL LOCATIONS.
- SECTION 4216/4217 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATION NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" IS VALID. THE CONTRACTOR SHALL CALL THE UNDERGROUND SERVICE ALERT (1-800-422-4133) TWO (2) WORKING DAYS PRIOR TO CONSTRUCTION TO OBTAIN A DIG ALERT ID NUMBER.
- CALIFORNIA SENATE BILL 1359 (APPROVED 2006) OUTLINES PROCEDURES FOR LOCATING UTILITIES BY HAND EXCAVATION. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THIS LEGISLATION AND COMPLY WITH ITS DIRECTIVE. PRIOR TO EACH CONSTRUCTION ACTIVITY WITHIN RAILROAD RIGHT-OF-WAY, THE CONTRACTOR SHALL NOTIFY RAILROAD'S SIGNAL REPRESENTATIVE.
- THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS FOR CONFLICTS WITH EXISTING UTILITIES, SIGNAL CABLES/EQUIPMENT, FIBER OPTIC LINES, AND/OR OTHER ITEMS THAT MIGHT IMPAIR CONSTRUCTION ACTIVITIES. INCONSISTENCIES FOUND SHALL BE REPORTED TO THE ENGINEER.
- REPAIRS TO THE DAMAGED MATERIALS OR FACILITIES INTENDED TO REMAIN IN PLACE SHALL BE MADE BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE UNLESS OTHERWISE STATED BY THE ENGINEER.
- ALL EXCAVATED WASTE MATERIAL SHALL BE IMMEDIATELY REMOVED FROM THE SITE. ON SITE STORAGE OF EXCAVATED WASTE MATERIAL SHALL NOT BE PERMITTED AT ANY TIME.
- DEFINITIONS:
 - A. TRACK OUTAGE: TRACK WHICH IS OUT OF SERVICE FOR A GIVEN PERIOD OF TIME.
 - B. ACTIVE TRACK: TRACK ON WHICH TRAINS ARE OPERATING AND INTERRUPTION OF SERVICE MAY OCCUR ONLY WITHIN AN APPROVED "WINDOW" AS DEFINED BELOW.
 - C. FOULED TRACK: TRACK IS FOULED WHEN AN OBSTRUCTION IS PLACED WITHIN EIGHT (8) FEET FROM THE CENTERLINE OF THE TRACK OR WHEN AN OVERHEAD OBSTRUCTION IS PLACED WITHIN TWENTY TWO AND A HALF FEET (22'-6") ABOVE THE TOP OF RAIL.
 - D. WORK WINDOW: A PERIOD OF TIME WITH SPECIFIC BEGINNING AND ENDING TIME AND DURATIONS FOR WHICH THE TRACK, SIGNALS, BRIDGES, AND OTHER OPERATING SYSTEM ELEMENTS WITHIN THE OPERATING ENVELOPE ARE TEMPORARILY REMOVED FROM SERVICE OR MODIFIED IN SOME OTHER MANNER AND TRAIN AND OTHER OPERATIONS SUSPENDED OR MODIFIED TO ALLOW CONSTRUCTION OR MAINTENANCE WORK TO OCCUR. WRITTEN AUTHORITY FROM SCRRRA AND AN APPROVED SITE SPECIFIC WORK PLAN (SSWP) IS REQUIRED BEFORE THE CONTRACTOR IS GRANTED A WORK WINDOW. THE CONTRACTOR'S WORK WINDOW SHALL HAVE SPECIFIC GEOGRAPHIC LIMITS, WHICH ARE DEFINED IN THE APPROVED SSWP. MODIFICATIONS OR SUSPENSION OF TRAIN AND ON-TRACK EQUIPMENT MOVEMENTS RESULTING FROM A WORK WINDOW INVOLVES WRITTEN CHANGES TO THE RAILROAD'S RULES OF TRAIN AND ON-TRACK EQUIPMENT OPERATIONS.
 - E. EXCLUSIVE TRACK WINDOW: AN APPROVED WORK WINDOW IN WHICH NO TRAIN MOVEMENTS (EXCEPT THE CONTRACTOR OR SCRRRA WORK TRAINS OR EQUIPMENT UNDER CONTROL OF THE EIC, PER THE SSWP) WILL OPERATE ON ANY TRACK WITHIN THE WINDOW LIMITS. THE CONTRACTOR MAY DISMANTLE, REMOVE, RECONSTRUCT, OR OTHERWISE OBSTRUCT TRACKS WITHIN THE LIMITS OF SUCH A WINDOW. THIS WORK MAY BE PROTECTED BY TRACK OUT OF SERVICE, TRACK AND TIME LIMITS, OR BY FORM B TRACK BULLETIN.
 - F. LIMITED TRACK WINDOW: AN APPROVED WORK WINDOW FOR SOME, BUT NOT ALL TRACKS WITHIN A GENERAL WORK AREA (E.G. ONE TRACK REMAINS FOR OPERATION OF TRAINS, OTHER TRACKS ARE AVAILABLE FOR THE CONTRACTOR'S WORK). MOVEMENT OF TRAINS OVER THE TRACK(S) OF A LIMITED TRACK WINDOW IS UNDER THE CONTROL OF THE EIC WHO WILL NOT AUTHORIZE TRAIN MOVEMENT UNLESS AND UNTIL THE CONTRACTOR PERSONNEL AND EQUIPMENT ARE CLEAR OF THE OPERATING TRACK. THE CONTRACTOR MAY REMOVE, CONSTRUCT, OR OBSTRUCT ONLY THE TRACK DESIGNATED BY THE SSWP AND MUST ARRANGE THE WORK SO THAT TRAINS CAN OPERATE WITHOUT DELAY ON THE REMAINING TRACK(S) IN THE WORK AREA. THIS WORK MAY BE PROTECTED BY TRACK OUT OF SERVICE, TRACK AND TIME, OR BY FORM B TRACK BULLETIN.
 - G. FORM B WORK WINDOW: AN APPROVED WORK WINDOW IN WHICH PASSENGER, FREIGHT, AND ALL OTHER TRAINS AND ON-TRACK EQUIPMENT MOVEMENTS CAN BE PROHIBITED FROM ENTERING THE DEFINED LIMITS OF A SEGMENT OF TRACK. THE FORM B WORK WINDOW DOES NOT ALLOW THE CONTRACTOR TO REMOVE FROM SERVICE OR MODIFY THE TRACKS, SIGNALS, BRIDGES, STATIONS, OR OTHER ELEMENTS OF THE OPERATING SYSTEM IN A MANNER WHICH WILL DELAY OR IN ANY WAY AFFECT THE SAFE OPERATION OF THE TRAINS. THE FORM B WORK WINDOW ALLOWS THE CONTRACTOR THE ABILITY TO ENTER THE OPERATING ENVELOPE AND PERFORM CONSTRUCTION ACTIVITIES SUBJECT TO THE CONDITIONS ABOVE. AN EMPLOYEE-IN-CHARGE/FLAGMAN FORM SCRRRA WILL EXERCISE STRICT CONTROL OVER THE CONTRACTOR'S CONSTRUCTION ACTIVITIES IN CONJUNCTION WITH ROADWAY WORKER PROTECTION REQUIREMENTS, TO ASSURE THAT THE CONTRACTOR'S ACTIVITIES DO NOT DELAY OR IMPACT TRAIN SERVICE.
 - H. TRACK AND TIME: AN APPROVED WORK WINDOW IN WHICH THE DISPATCHER WILL AUTHORIZE MEN AND EQUIPMENT TO OCCUPY A TRACK OR TRACKS WITHIN LIMITS FOR A CERTAIN TIME PERIOD. THE DISPATCHER AUTHORITY SHALL INCLUDE AUTHORITY NUMBER, TRACK DESIGNATION, LIMITS AND TIME. MOVEMENTS MAY BE MADE IN EITHER DIRECTION WITHIN THE SPECIFIED LIMITS UNTIL THE LIMITED ARE RELEASED.
- ON SITE CONSTRUCTION BY OTHERS (RAILROAD SIGNAL FORCES, SPRINT, UTILITIES, ETC.) MAY OCCUR DURING THE CONSTRUCTION PERIOD OF THIS CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES WITH THE ENGINEER SO AS TO MINIMIZE INTERFERENCE WITH OTHERS.
- PRIOR TO COMMENCING WORK, ALL EXISTING SITE CONDITIONS SHALL BE FIELD VERIFIED WITH THE ENGINEER TO ASCERTAIN THE LIMITS OF WORK ACTIVITIES. THE CONTRACTOR SHALL SUBMIT AND RECEIVE THE ENGINEER'S APPROVAL OF THE PROJECT SCHEDULE AND OPERATIONS PLAN. EACH ITEM OF WORK SHALL BE DESCRIBED AND ACCOUNTED FOR IN THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL REFER TO THE SPECIFICATIONS FOR FURTHER INFORMATION REGARDING SUBMITTAL REQUIREMENTS.
- RAIL TRAFFIC DISRUPTIONS SHALL BE KEPT TO A MINIMUM. DISRUPTIONS IN RAIL TRAFFIC THAT MAY BE REQUIRED SHALL BE COORDINATED WITH THE ENGINEER BEFOREHAND. NO SUCH WORK SHALL BE COMMENCED WITHOUT THE ENGINEER'S APPROVAL. WORK AFFECTING THE MOVEMENT OF TRAINS WILL BE UNDER THE AUTHORITY AND OVERALL CONTROL OF THE ENGINEER OR HIS REPRESENTATIVE. BNSF AND METROLINK COMMUTER TRAIN OPERATIONS MUST BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
- THE CONTRACTOR SHALL NOT PLACE MATERIAL AND/OR EQUIPMENT WITHIN TWENTY (20) FEET OF AN ACTIVE TRACK AT ANY TIME WITHOUT PRIOR APPROVAL FROM THE ENGINEER.
- WALKWAYS SHALL BE PLACED AS REQUIRED BY CALIFORNIA PUBLIC UTILITIES COMMISSION GENERAL ORDER NO. 118 AND 26D FOR ALL NEW CONSTRUCTION, UNLESS OTHERWISE NOTED.
- THE CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY, THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT LIMITED TO NORMAL WORKING HOURS, AND THE CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY HOLD SCRRRA AND THE DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.
- THE LOCATIONS AND DIMENSIONS SHOWN ON THE PLANS FOR EXISTING FACILITIES ARE IN ACCORDANCE WITH AVAILABLE INFORMATION WITHOUT UNCOVERING AND MEASURING. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THIS INFORMATION OR THAT ALL EXISTING UNDERGROUND FACILITIES ARE SHOWN.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE APPLICABLE CODES, ORDINANCES, AND STANDARD SPECIFICATIONS OF ALL AGENCIES THAT HAVE THE RESPONSIBILITY OF REVIEWING PLANS AND SPECIFICATIONS FOR CONSTRUCTION OF ALL ITEMS PER THESE PLANS AND SPECIFICATIONS IN THIS LOCALITY.
- THE CONTRACTOR SHALL OBTAIN ALL THE NECESSARY PERMITS AND PAY PERMIT FEES AS REQUIRED FOR CONSTRUCTION OF THIS PROJECT.
- THE CONTRACTOR SHALL CLEAN UP ALL DEBRIS AND MATERIALS RESULTING FROM HIS OPERATION AND RESTORE ALL SURFACES, STRUCTURES, DITCHES AND PROPERTY TO ITS ORIGINAL CONDITION TO THE SATISFACTION OF THE ENGINEER.
- CONTRACTOR SHALL PROVIDE FOR THE CONTINUOUS OPERATION OF THE EXISTING FACILITY WITHOUT INTERRUPTION DURING CONSTRUCTION UNLESS SPECIFICALLY AUTHORIZED OTHERWISE BY THE RESPECTIVE AUTHORITY.
- CONTRACTOR TO IDENTIFY DEPTH AND LOCATION OF ALL EXISTING UNDERGROUND UTILITIES. FOR LOCATION OF SIGNALS AND COMMUNICATION CONDUITS CONTACT RAILROAD SIGNAL DEPARTMENT (909) 592-4152.
- NEW MAINLINE TRACKS SHALL BE 136RE CONTINUOUSLY WELDED RAIL (CWR) WITH PANDROL CLIPS AND CONCRETE TIES. SIDINGS AND INDUSTRY TRACKS MAY BE CONSTRUCTED FROM SECONDHAND 136RE RAIL ON TIMBER TIES.
- MINIMUM SUB BALLAST DEPTH THROUGHOUT THE PROJECT LIMITS SHALL BE DICTATED BY THE FINAL RECOMMENDATIONS OF THE PROJECT'S GEOTECHNICAL REPORT. FINAL DESIGN TEAM TO DICTATE THE LIMITS OF THE MINIMUM SUB BALLAST DEPTH IN THE TRACK PLAN AND PROFILE DRAWINGS.
- EXACT MODIFICATIONS TO THE PROJECT'S SPUR TRACKS TO BE DETERMINED DURING FINAL DESIGN.
- FINAL DESIGN TEAM TO EVALUATE THE FEASIBILITY OF INCREASING THE PROJECT'S PASSENGER TRAIN DESIGN SPEED TO SEVENTY-NINE (79) MPH THROUGH COORDINATION WITH OCTA, METROLINK, BNSF, AMTRAK AND UPRR.
- SCRRRA IS NOT A MEMBER OF DIGALERT. THE CONTRACTOR SHALL CALL SCRRRA SIGNAL DEPARTMENT AT (909)-592-1346 A MINIMUM OF FIVE (5) DAYS PRIOR TO BEGINNING CONSTRUCTION TO MARK SIGNAL AND COMMUNICATION CABLES AND CONDUITS. TO ASSURE CABLES AND CONDUITS HAVE BEEN MARKED, NO WORK MAY PROCEED UNTIL THE CONTRACTOR HAVE BEEN PROVIDED WITH AN SCRRRA DIG NUMBER. IN CASE OF SIGNAL EMERGENCIES OR GRADE CROSSING PROBLEMS, THE CONTRACTOR SHALL CALL SCRRRA'S 24-HOUR SIGNAL EMERGENCY NUMBER 1-888-446-9721.
- BEFORE EXCAVATING, THE CONTRACTOR MUST DETERMINE WHETHER ANY UNDERGROUND PIPE LINES, ELECTRIC WIRES OR CABLES, INCLUDING FIBER OPTIC CABLE SYSTEMS, ARE PRESENT AND LOCATED WITHIN THE PROJECT WORK AREA BY CALLING THE SOUTHERN CALIFORNIA UNDERGROUND SERVICE ALERT AT 811.
- CONTACT SCRRRA'S CONSULTANT/CONTRACTOR AT (714) 788-1864 TO ARRANGE FOR FLAGGING SERVICES. FLAGGING SERVICE IS DEPENDENT ON THE EMPLOYEE-IN-CHARGE'S (EIC) AVAILABILITY AND MAY REQUIRE A MINIMUM OF FIFTEEN (15) WORKING DAYS PRIOR TO BEGINNING WORK. PRIOR NOTIFICATION OF FLAGGING SERVICES DOES NOT GUARANTEE THE AVAILABILITY OF THE EIC FOR THE PROPOSED DATE OF WORK.
- CONTACT SCRRRA AT 1-909-451-2885 TO ARRANGE FOR THIRD PARTY SAFETY TRAINING. ALLOW 24 TO 72 HOURS FROM THE REQUEST FOR SAFETY TRAINING TO ARRANGE THE TRAINING.
- CONTRACTOR IS TO COMPLETE SCRRRA'S TEMPORARY RIGHT OF ENTRY AGREEMENT, FORM 6. THIS FORM IS AVAILABLE ON SCRRRA'S WEBSITE AT (www.metroinktrains.com: About Us: Engineering & Construction).
- TEMPORARY TRAFFIC CONTROL PLANS SHALL BE SUBMITTED TO SCRRRA FOR COMMENTS AND APPROVAL NOT LESS THAN SIXTY (60) DAYS PRIOR TO START OF THE WORK. THE TEMPORARY TRAFFIC CONTROL PLANS SHALL BE PREPARED, SIGNED, AND SEALED BY A CALIFORNIA LICENSED CIVIL OR TRAFFIC ENGINEER. TEMPORARY TRAFFIC CONTROL WILL COMPLY WITH THE CURRENT EDITIONS OF THE CALIFORNIA MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (CAMUTCD), WORK AREA TRAFFIC CONTROL HANDBOOK (WATCH), TEMPORARY TRAFFIC CONTROL WORK AT OR NEAR GRADE CROSSING GUIDELINES PREPARED BY SCRRRA, AND SCRRRA'S ENGINEERING STANDARD ES4301.

\$USERS
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 \$DATE \$
 \$REV \$
 \$SHEET \$
 \$TOTAL \$

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NOT FOR CONSTRUCTION

INFORMATION CONFIDENTIAL:
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DESIGNED BY
J. MOLINA
DRAWN BY
J. MOLINA
CHECKED BY
S. MAGALLON
APPROVED BY
A. SOKOL
DATE
11-02-2018

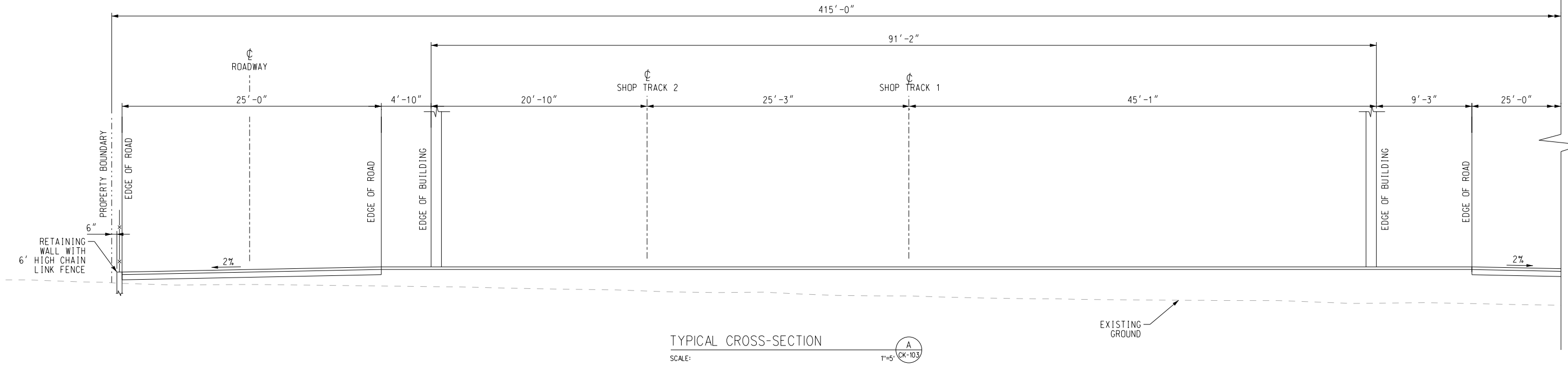


SUBMITTED: _____
PROJECT MANAGER
APPROVED: _____

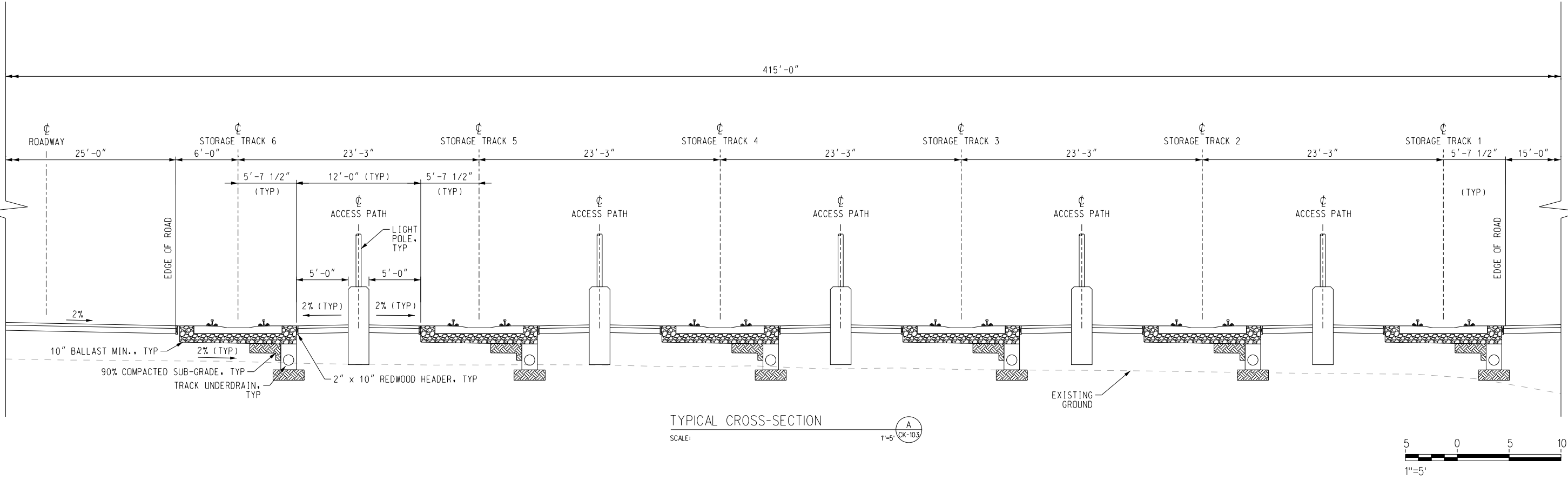
METROLINK ORANGE COUNTY MAINTENANCE FACILITY PROJECT

GENERAL NOTES

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| REVISION | SHEET NO. 5 OF 26 |
| SCALE NONE | |

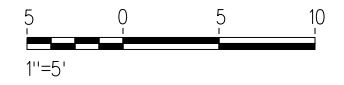


FOR CONTINUATION SEE, BELOW LEFT



FOR CONTINUATION, SEE ABOVE

FOR CONTINUATION, SEE DRAWING CK-022



DATE: _____
SCALE: _____
SHEET NO.: _____
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DESIGNED BY: J. MOLINA
DRAWN BY: J. MOLINA
CHECKED BY: S. MAGALLON
APPROVED BY: A. SOKOL
DATE: 11-02-2018

SUBMITTED: _____
APPROVED: _____
PROJECT MANAGER

METROLINK ORANGE COUNTY MAINTENANCE FACILITY PROJECT

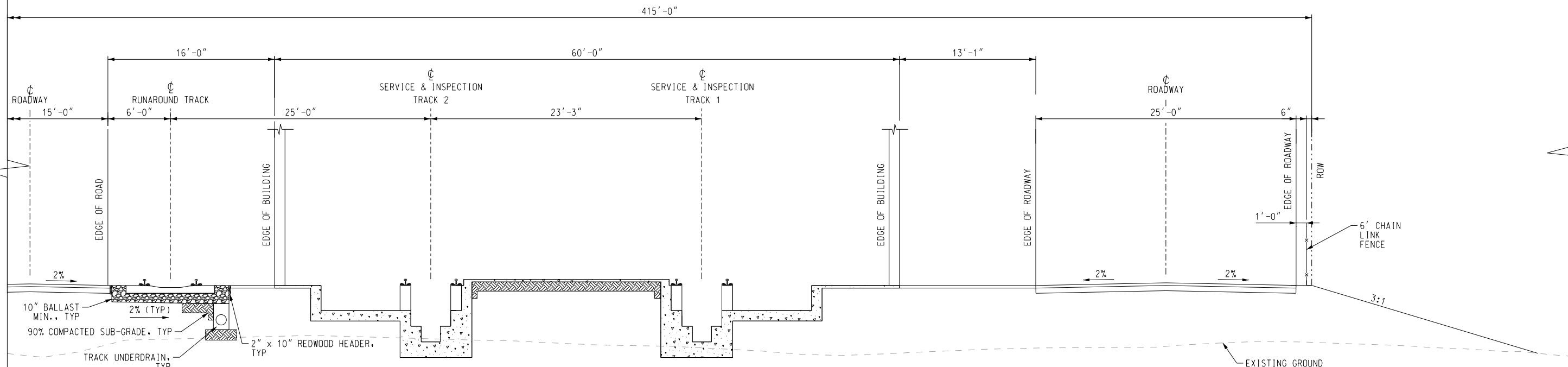
TYPICAL CROSS-SECTION
SHEET 1 OF 2

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| REVISION | SHEET NO. |
| | 6 OF 26 |
| SCALE AS SHOWN | |

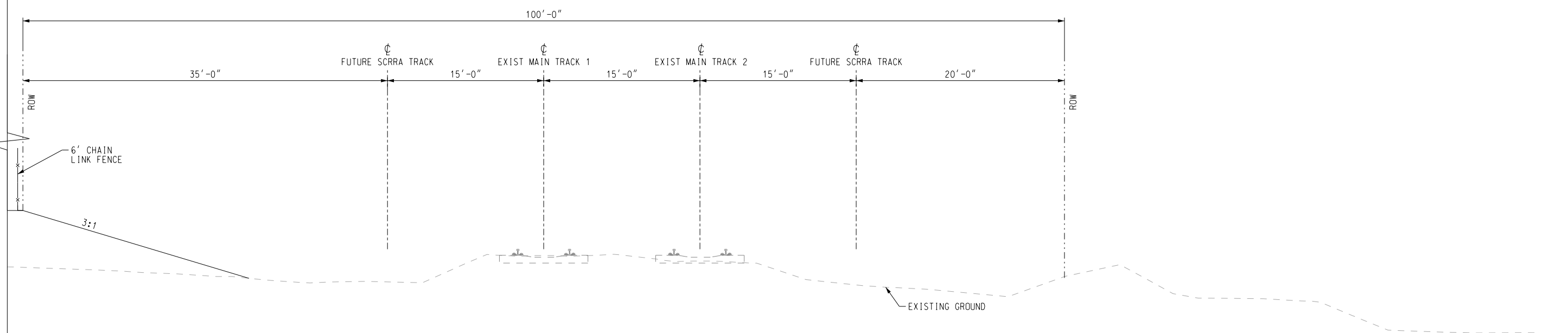
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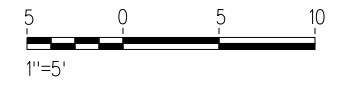
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TYPICAL CROSS-SECTION
SCALE: 1"=5' (A CK-103)



TYPICAL CROSS-SECTION
SCALE: 1"=5' (A CK-103)



DATE \$
BY \$
APP. \$

| REV. | DATE | BY | APP. |
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CHECKED BY S. MAGALLON
APPROVED BY A. SOKOL
DATE 11-02-2018

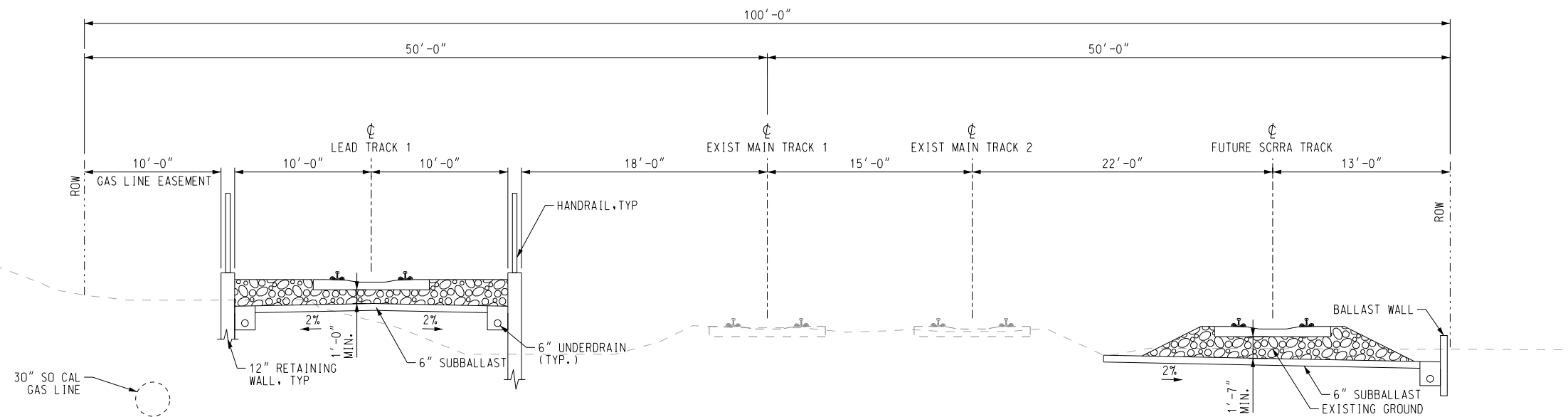


SUBMITTED: _____
APPROVED: _____
PROJECT MANAGER

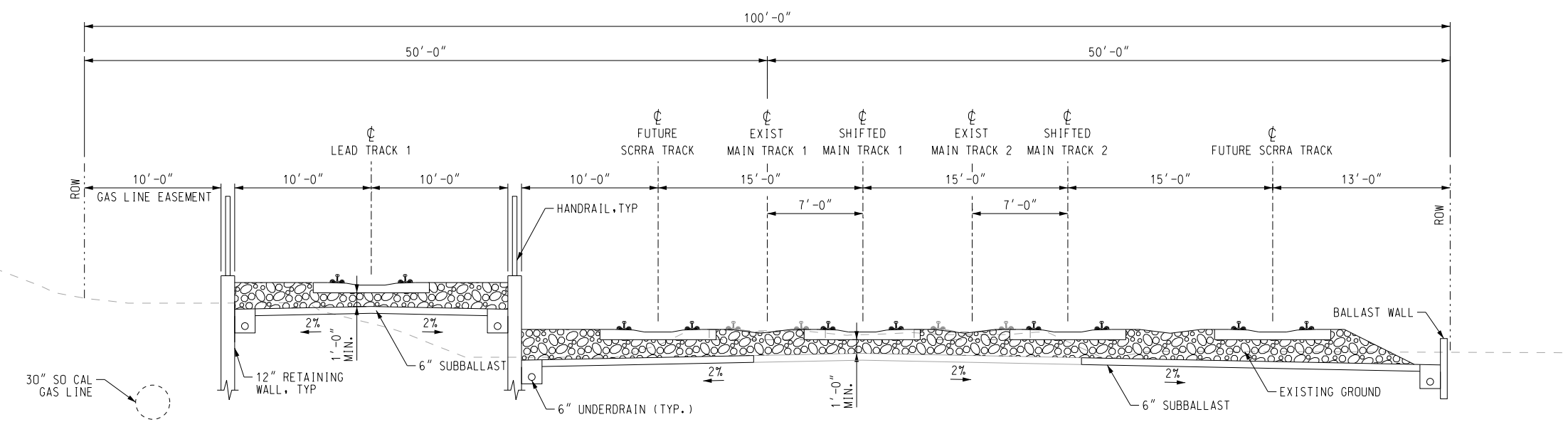
**METROLINK ORANGE COUNTY
MAINTENANCE FACILITY PROJECT**

TYPICAL CROSS-SECTION
SHEET 2 OF 3

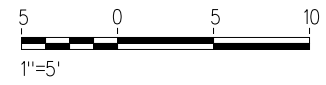
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| CONTRACT NO. | |
| DRAWING NO. | C-022 |
| REVISION | SHEET NO. 7 OF 26 |
| SCALE | AS SHOWN |



TYPICAL CROSS-SECTION WITH FUTURE 3RD MAINTRACK (B)
SCALE: 1"=5' (CK-103)



TYPICAL CROSS-SECTION WITH FUTURE 3RD AND 4TH MAIN TRACKS (C)
SCALE: 1"=5' (CK-103)



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DESIGNED BY J. MOLINA
 DRAWN BY J. MOLINA
 CHECKED BY S. MAGALLON
 APPROVED BY A. SOKOL
 DATE 11-02-2018



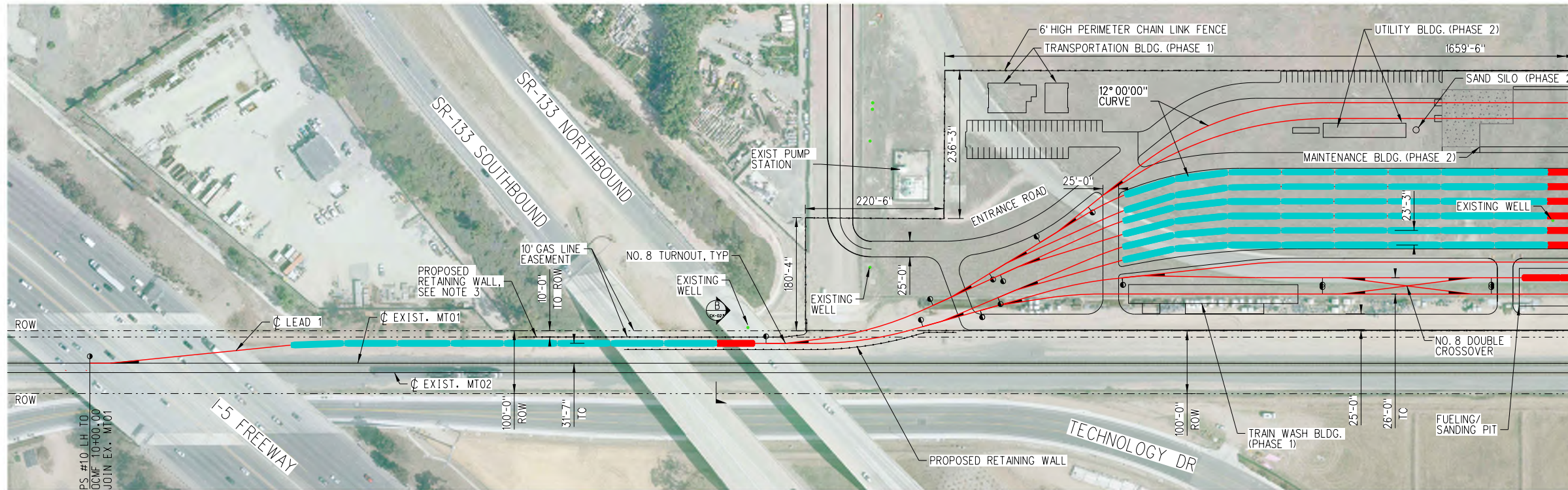
SUBMITTED: _____
 PROJECT MANAGER
 APPROVED: _____

**METROLINK ORANGE COUNTY
 MAINTENANCE FACILITY PROJECT**

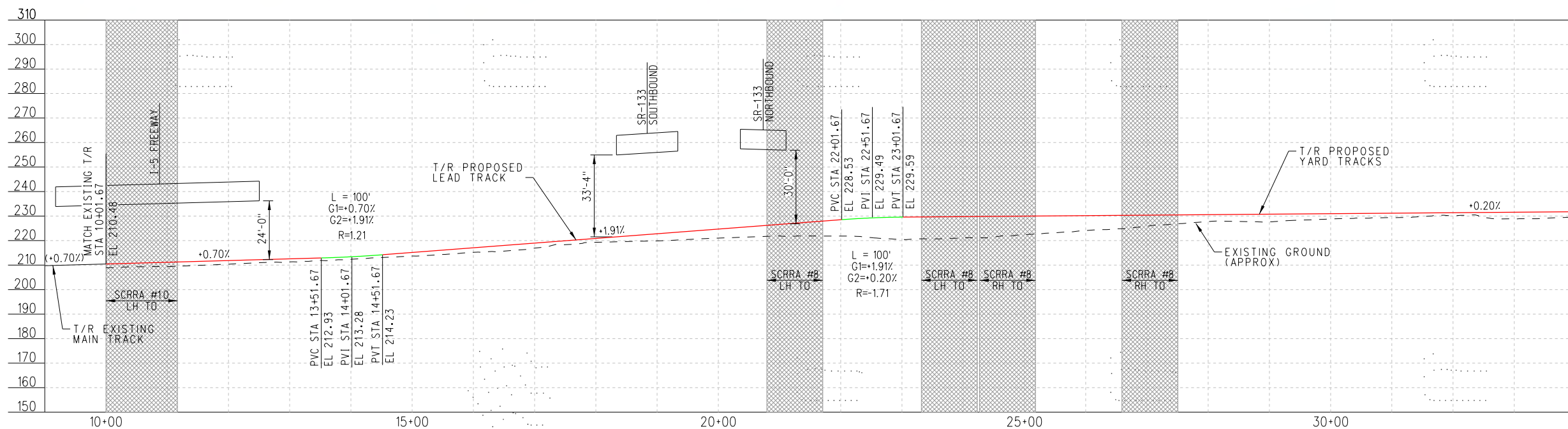
TYPICAL CROSS-SECTION
 SHEET 3 OF 3

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| CONTRACT NO. | |
| DRAWING NO. C-023 | |
| REVISION | SHEET NO. 8 OF 26 |
| SCALE AS SHOWN | |

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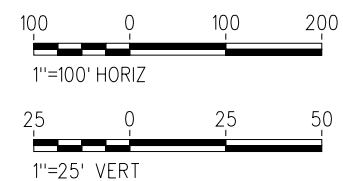
MATCH LINE STA 33+80
SEE SHEET CK-102



MATCH LINE STA 34+00
SEE SHEET CK-102

- LEGEND:**
- PROPOSED TRACK
 - 85' LONG COACH
 - LOCOMOTIVE
 - PROPOSED TURNOUT
 - EXISTING TRACK
 - PROPOSED ROADWORK
 - PROPOSED BUMPING POST
 - EXISTING ROW
 - PROPOSED BLUE FLAG DERAIL
 - EXISTING GROUND (APPROX.)

- NOTES:**
- ALL YARD TURNOUTS ARE NO. 8. MAINLINE TURNOUTS ARE NO. 10
 - MAXIMUM CURVATURE IS 10 DEGREES UNLESS OTHERWISE NOTED.
 - RETAINING WALLS DESIGNED TO AVOID INCREASING THE LOAD ON THE GAS LINE.



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DESIGNED BY: J. MOLINA
DRAWN BY: A. LEWIS
CHECKED BY: S. MAGALLON
APPROVED BY: A. SOKOL
DATE: 11-02-2018



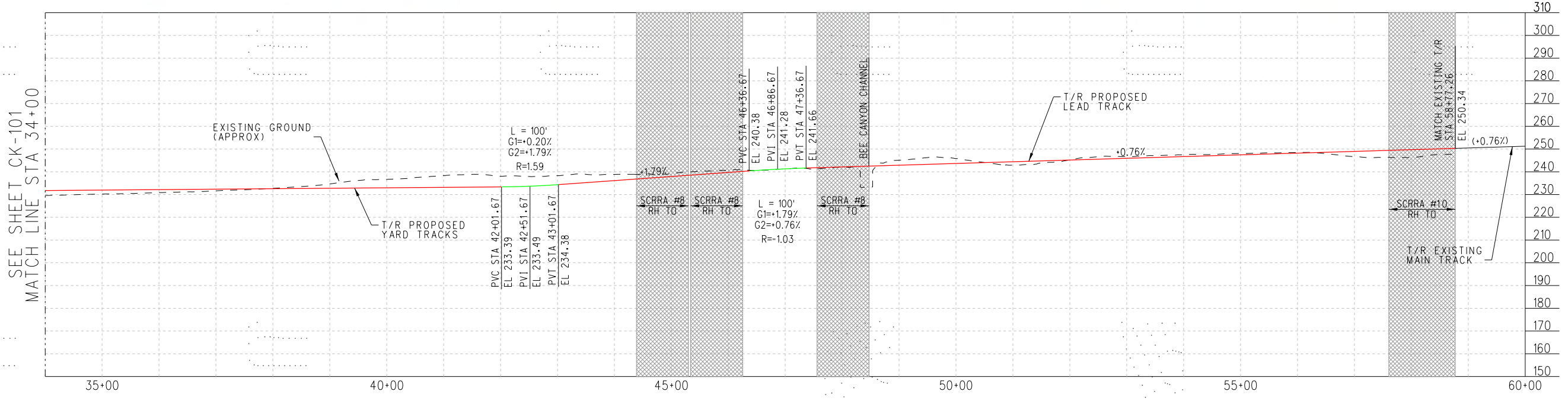
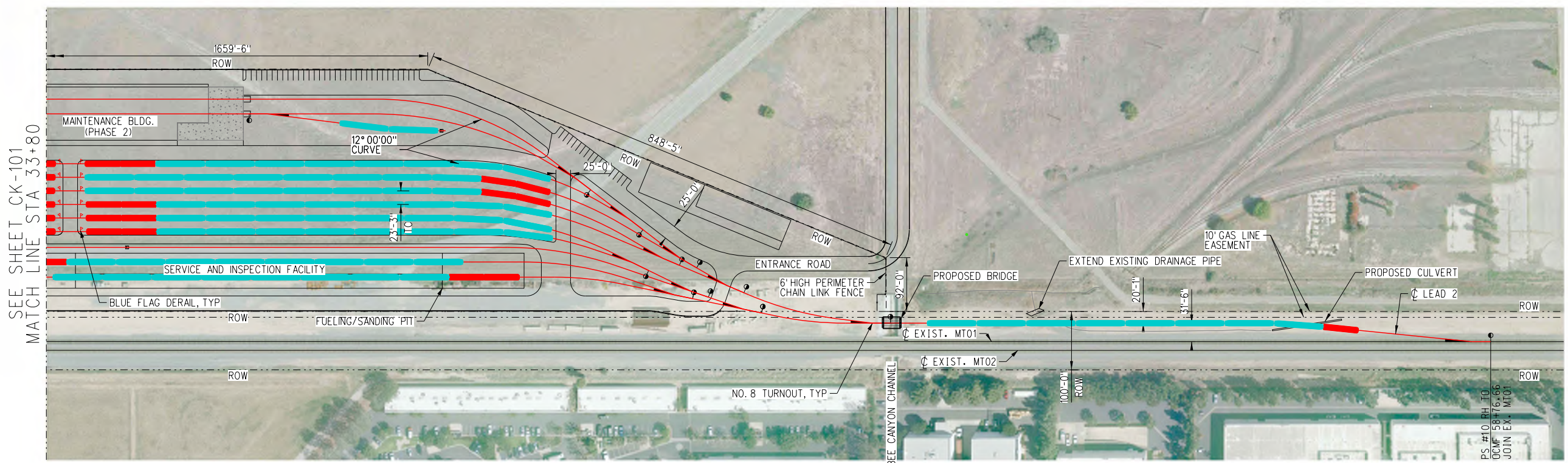
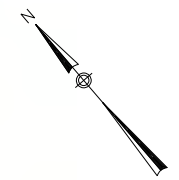
SUBMITTED: _____
APPROVED: _____
PROJECT MANAGER

METROLINK ORANGE COUNTY MAINTENANCE FACILITY PROJECT

TRACK PLAN AND PROFILE
SHEET 1 OF 2

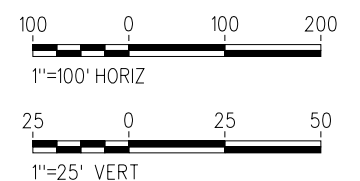
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| CONTRACT NO. | |
| DRAWING NO. CK-101 | |
| REVISION | SHEET NO. |
| | 9 OF 26 |
| SCALE AS SHOWN | |

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 \$TIMES
 \$DATE
 \$PLANS
 \$SPECS
 \$LETTERS
 \$PLOT
 \$PRINT



- LEGEND:**
- PROPOSED TRACK
 - EXISTING TRACK
 - 85' LONG COACH
 - PROPOSED ROADWORK
 - ▬ PROPOSED TURNOUT
 - - - - - EXISTING ROW
 - PROPOSED BUMPING POST
 - ▴ PROPOSED BLUE FLAG DERAIL
 - LOCOMOTIVE

NOTES:
 1. ALL YARD TURNOUTS ARE NO. 8. MAINLINE TURNOUTS ARE NO. 10
 2. MAXIMUM CURVATURE IS 10 DEGREES UNLESS OTHERWISE NOTED.



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DESIGNED BY: J. MOLINA
 DRAWN BY: A. LEWIS
 CHECKED BY: S. MAGALLON
 APPROVED BY: A. SOKOL
 DATE: 11-02-2018



SUBMITTED: _____
 PROJECT MANAGER
 APPROVED: _____

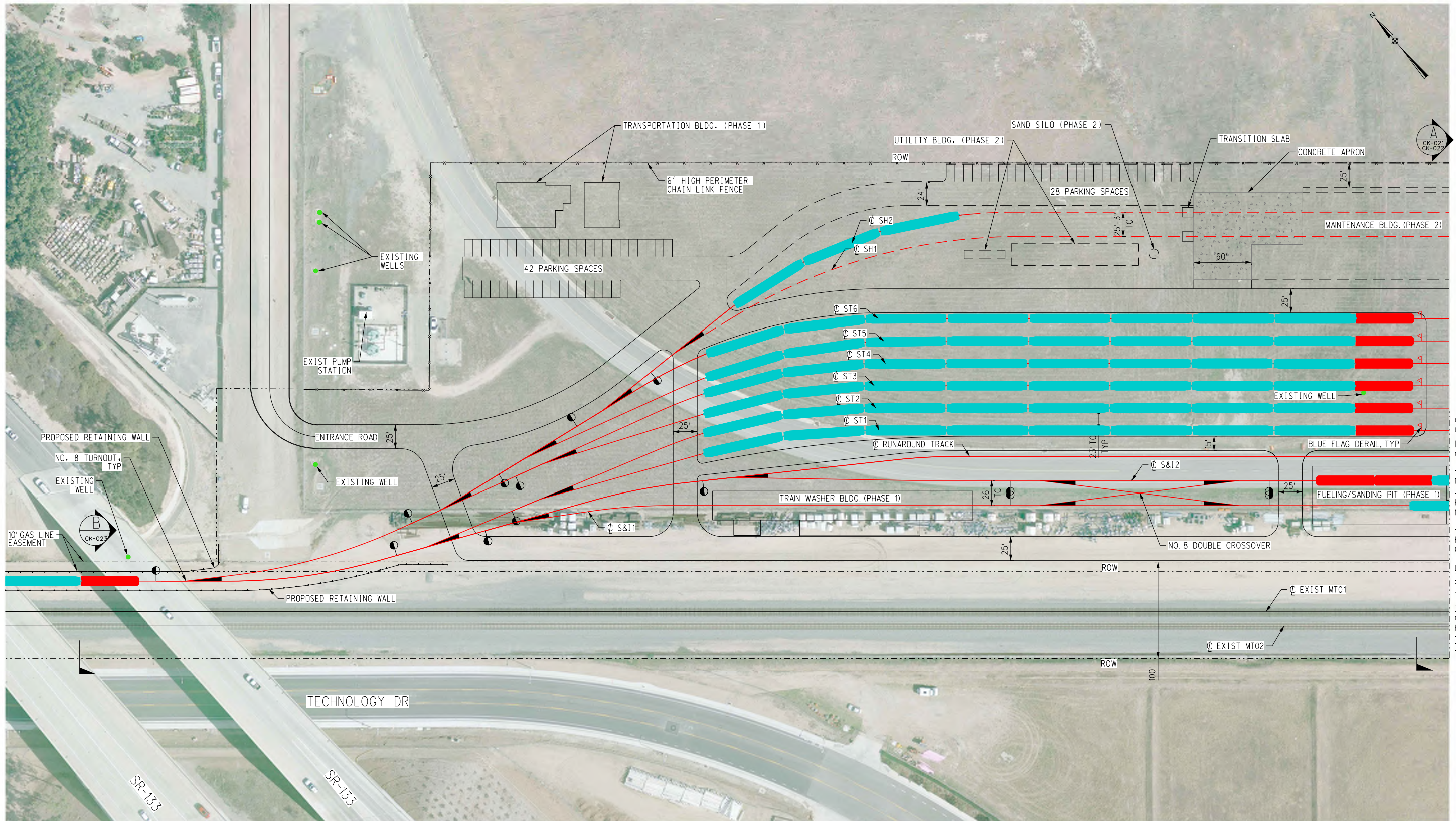
METROLINK ORANGE COUNTY MAINTENANCE FACILITY PROJECT

TRACK PLAN AND PROFILE
 SHEET 2 OF 2

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| CONTRACT NO. | |
| DRAWING NO. CK-102 | |
| REVISION | SHEET NO. |
| | 10 OF 26 |
| SCALE AS SHOWN | |

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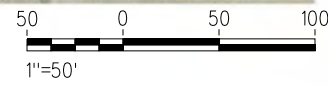
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MATCH LINE STA RT1 34+27.56
SEE DRAWING CK-104

LEGEND:

| | | | | | |
|---|--|---|--|--|--|
| — PHASE 1 TRACK | — EXISTING TRACK | 85' LONG COACH | — PHASE 1 ROADWORK | — PHASE 2 ROADWORK | ▴ TURNOUT |
| — PHASE 2 TRACK | — EXISTING ROW | LOCOMOTIVE | □ BUMPING POST | ▴ BLUE FLAG DERAIL | |



DATE: _____
BY: _____
SUB: _____
APP: _____

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| DESIGNED BY | J. MOLINA |
| DRAWN BY | J. MOLINA |
| CHECKED BY | S. MAGALLON |
| APPROVED BY | A. SOKOL |
| DATE | 11-02-2018 |



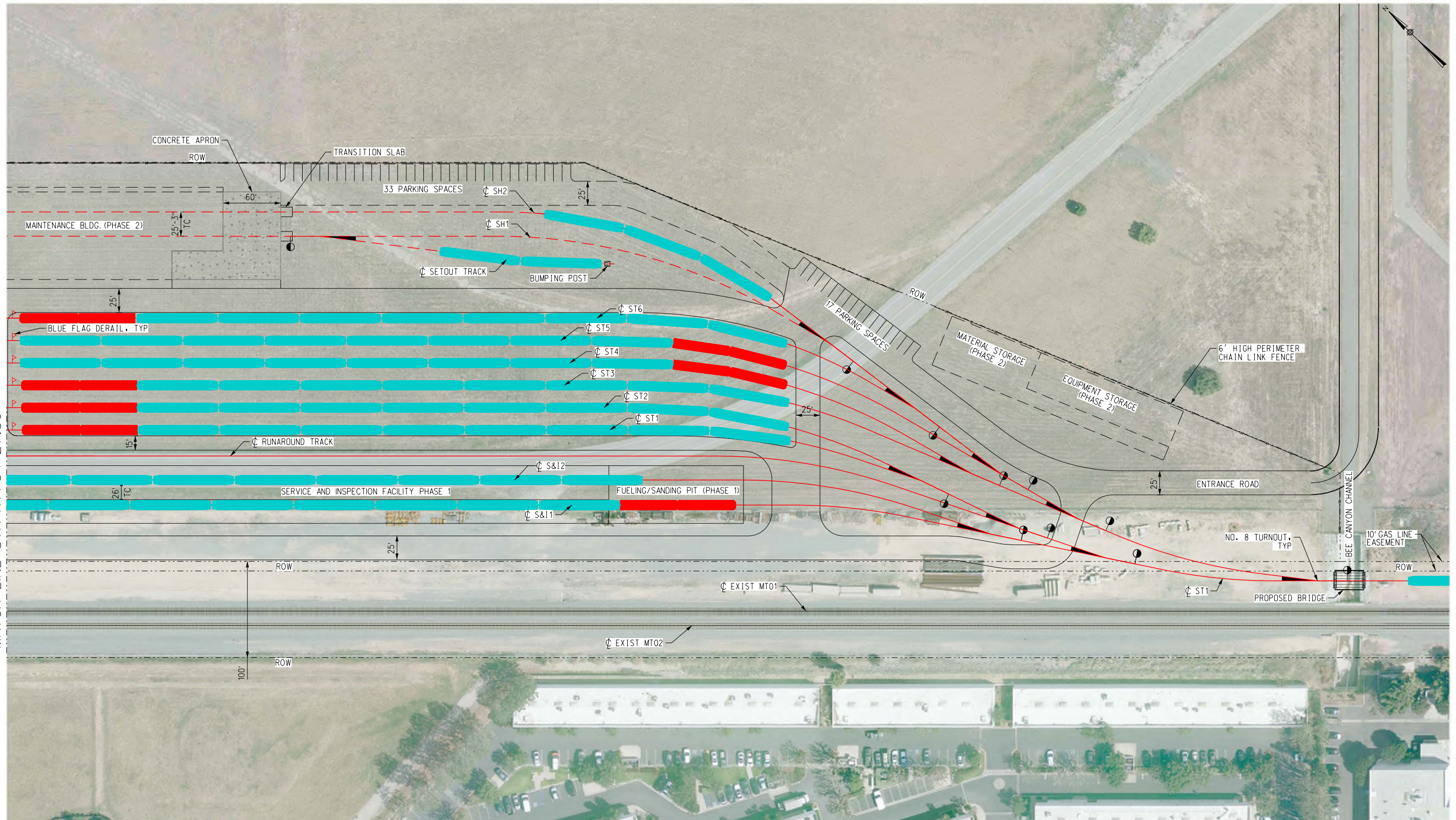
SUBMITTED: _____
APPROVED: _____
PROJECT MANAGER

**METROLINK ORANGE COUNTY
MAINTENANCE FACILITY PROJECT**

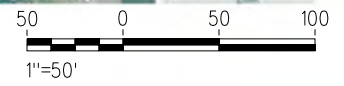
OCMF SITE PLAN
SHEET 1 OF 2

| | |
|--------------------|-----------|
| CONTRACT NO. | |
| DRAWING NO. CK-103 | |
| REVISION | SHEET NO. |
| | 11 OF 26 |
| SCALE AS SHOWN | |

SEE DRAWING CK-103
MATCH LINE STA RT1 34+27.56



- LEGEND:**
- PHASE 1 TRACK
 - PHASE 2 TRACK
 - EXISTING TRACK
 - EXISTING ROW
 - 85' LONG COACH
 - LOCOMOTIVE
 - PHASE 1 ROADWORK
 - PHASE 2 ROADWORK
 - TURNOUT
 - BUMPING POST
 - ▲ BLUE FLAG DERAIL



\$USERS
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 \$PERMITS
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|---|---|-----------|----------|-----------|------------|-------------|-------------|----------|------|------------|---|----|------|------|--|--|--|--|--|
| <div style="border: 2px solid black; padding: 5px; width: fit-content; margin: 0 auto;"> <p>5% SUBMITTAL NOT FOR CONSTRUCTION</p> </div> | <p>INFORMATION CONFIDENTIAL: All plans, drawings, specifications, and/or information furnished herewith shall remain the property of the Southern California Regional Rail Authority and shall be held confidential; and shall not be used for any purpose not provided for in agreements with the Southern California Regional Rail Authority.</p> | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">DESIGNED BY</td> <td>J. MOLINA</td> </tr> <tr> <td>DRAWN BY</td> <td>J. MOLINA</td> </tr> <tr> <td>CHECKED BY</td> <td>S. MAGALLON</td> </tr> <tr> <td>APPROVED BY</td> <td>A. SOKOL</td> </tr> <tr> <td>DATE</td> <td>11-02-2018</td> </tr> </table> | DESIGNED BY | J. MOLINA | DRAWN BY | J. MOLINA | CHECKED BY | S. MAGALLON | APPROVED BY | A. SOKOL | DATE | 11-02-2018 | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">BY</td> <td style="width: 20%;">SUB.</td> <td style="width: 20%;">APP.</td> <td style="width: 40%;"></td> </tr> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </table> | BY | SUB. | APP. | | | | | |
| DESIGNED BY | J. MOLINA | | | | | | | | | | | | | | | | | | |
| DRAWN BY | J. MOLINA | | | | | | | | | | | | | | | | | | |
| CHECKED BY | S. MAGALLON | | | | | | | | | | | | | | | | | | |
| APPROVED BY | A. SOKOL | | | | | | | | | | | | | | | | | | |
| DATE | 11-02-2018 | | | | | | | | | | | | | | | | | | |
| BY | SUB. | APP. | | | | | | | | | | | | | | | | | |
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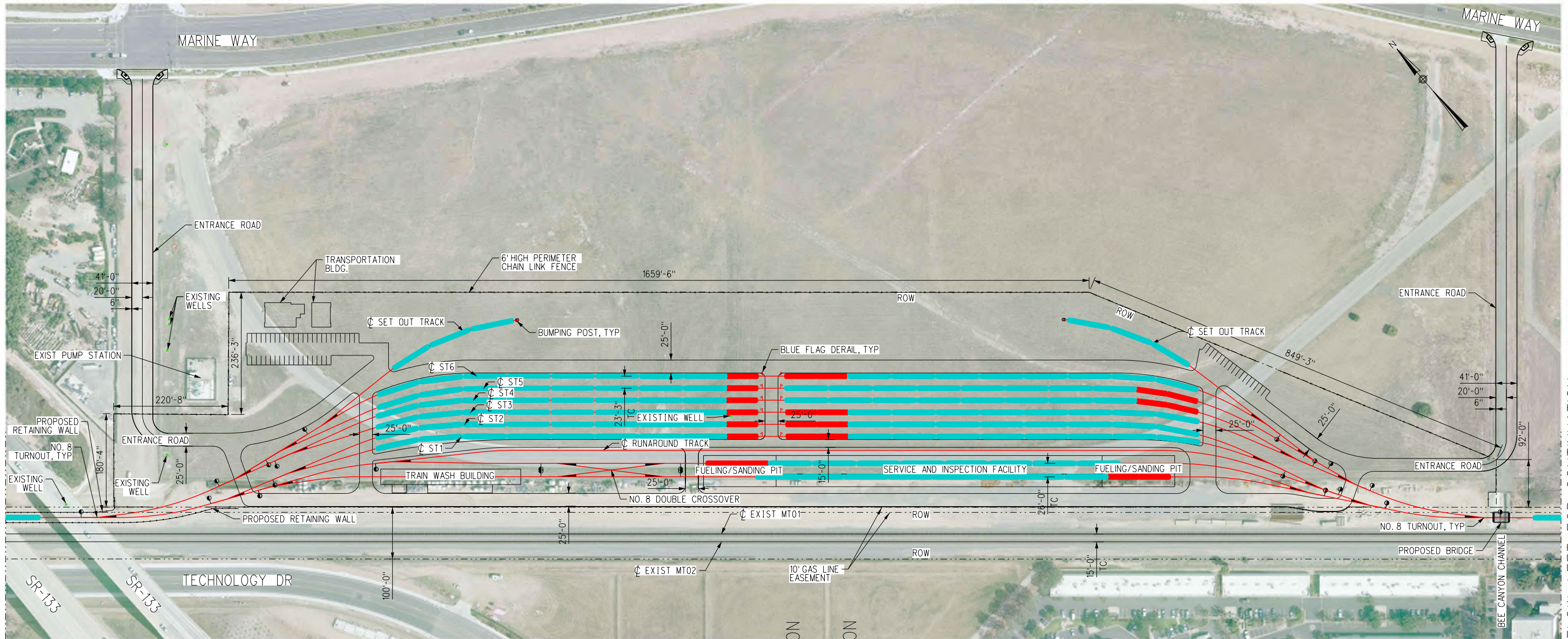
SUBMITTED: _____
 PROJECT MANAGER

APPROVED: _____

METROLINK ORANGE COUNTY
 MAINTENANCE FACILITY PROJECT

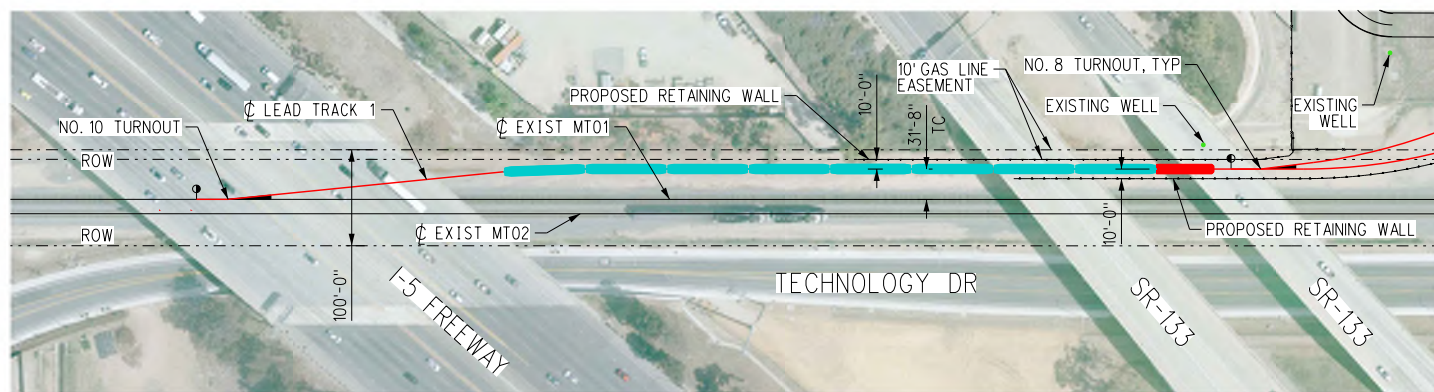
OCMF SITE PLAN
 SHEET 2 OF 2

| | |
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| CONTRACT NO. | |
| DRAWING NO. CK-104 | |
| REVISION | SHEET NO. 12 OF 26 |
| SCALE AS SHOWN | |

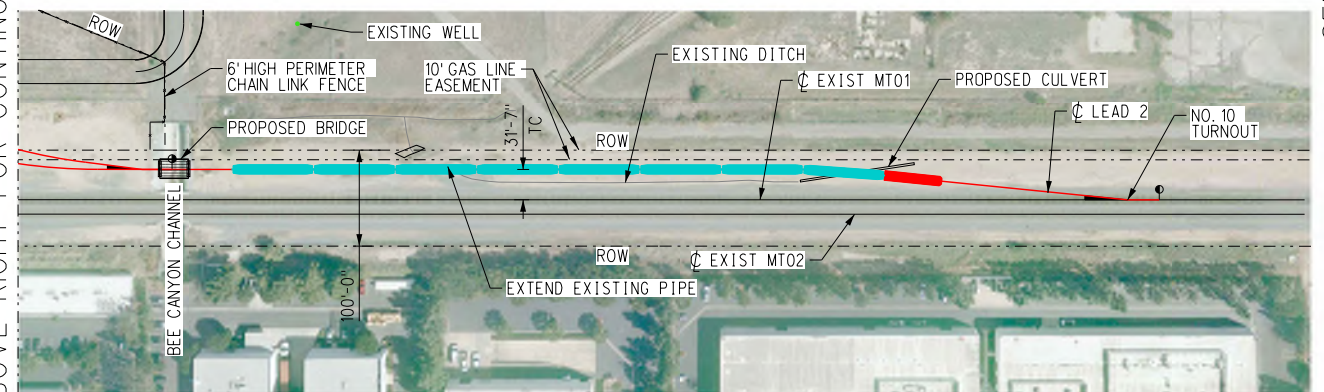


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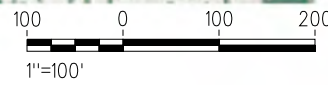
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SEE ABOVE LEFT FOR CONTINUATION



DATE: 11-02-2018
 TIME: 10:00 AM
 USER: J.MOLINA

| | | | | |
|------|------|----|------|------|
| REV. | DATE | BY | SUB. | APP. |
| | | | | |

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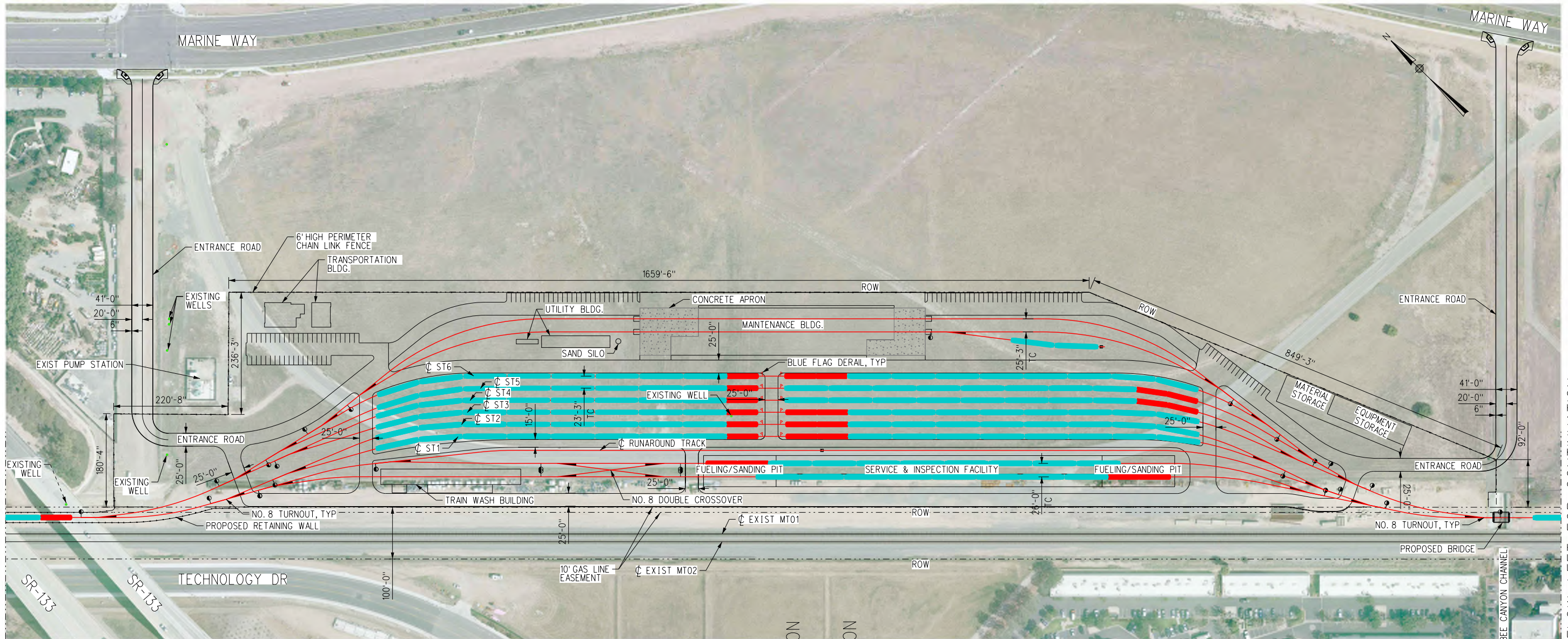
DESIGNED BY: J. MOLINA
 DRAWN BY: J. MOLINA
 CHECKED BY: S. MAGALLON
 APPROVED BY: A. SOKOL
 DATE: 11-02-2018



SUBMITTED: _____
 PROJECT MANAGER
 APPROVED: _____

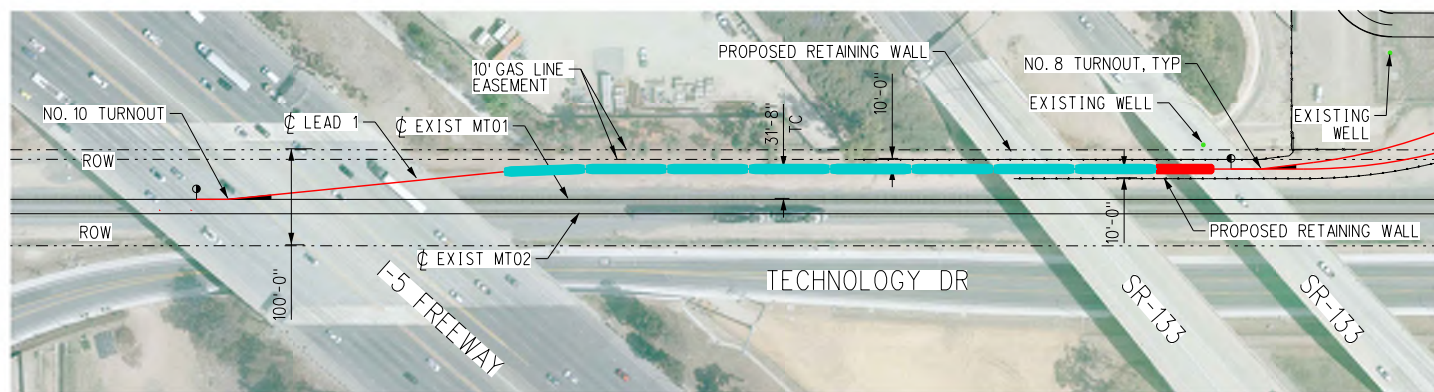
METROLINK ORANGE COUNTY MAINTENANCE FACILITY PROJECT
 OCMF SITE PLAN
 PHASE 1 LAYOUT
 SHEET 1 OF 2

| | |
|--------------------|--------------------|
| CONTRACT NO. | |
| DRAWING NO. CK-202 | |
| REVISION | SHEET NO. 13 OF 26 |
| SCALE AS SHOWN | |

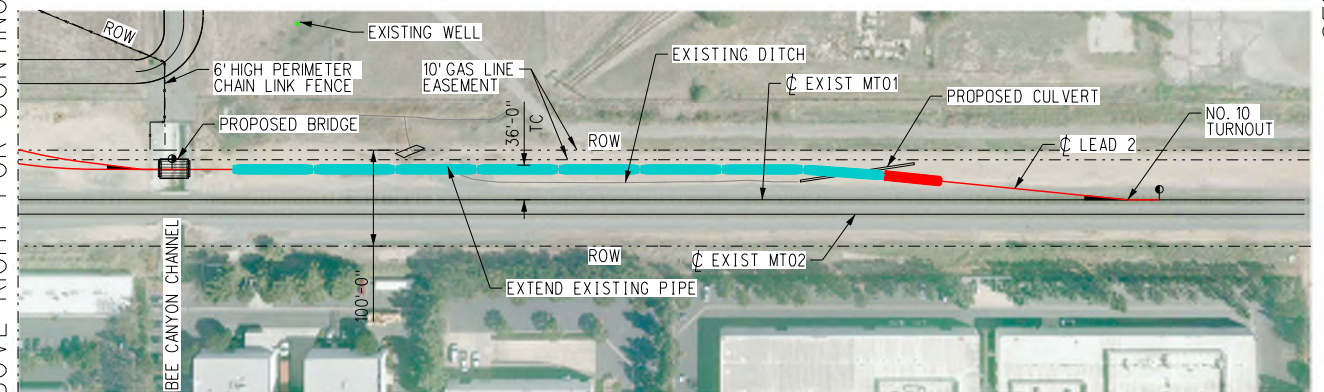


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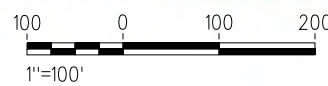
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 TIME: 10:00 AM
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 DRAWN BY: J. MOLINA
 CHECKED BY: S. MAGALLON
 APPROVED BY: A. SOKOL
 DATE: 11-02-2018

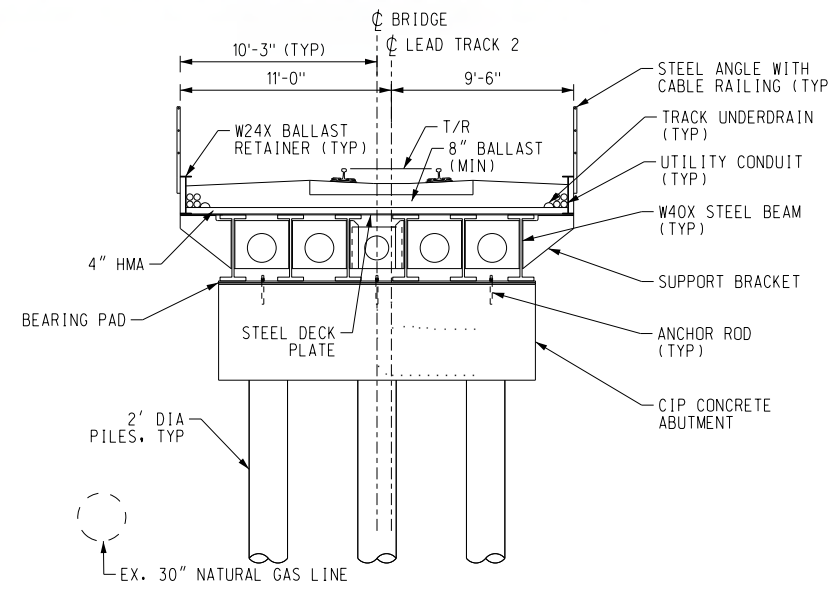
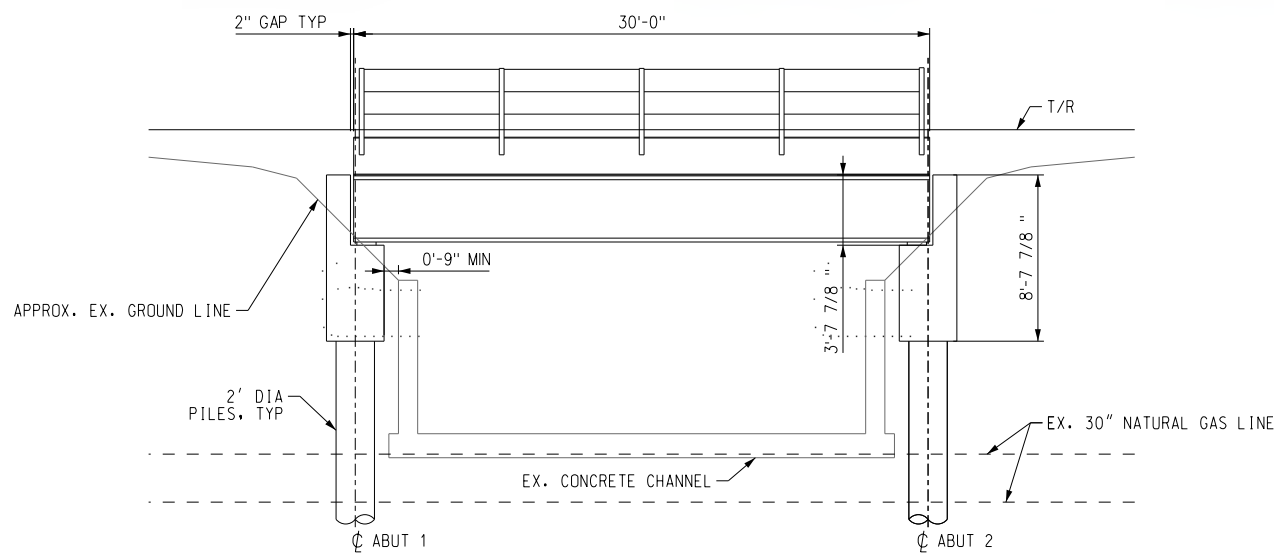
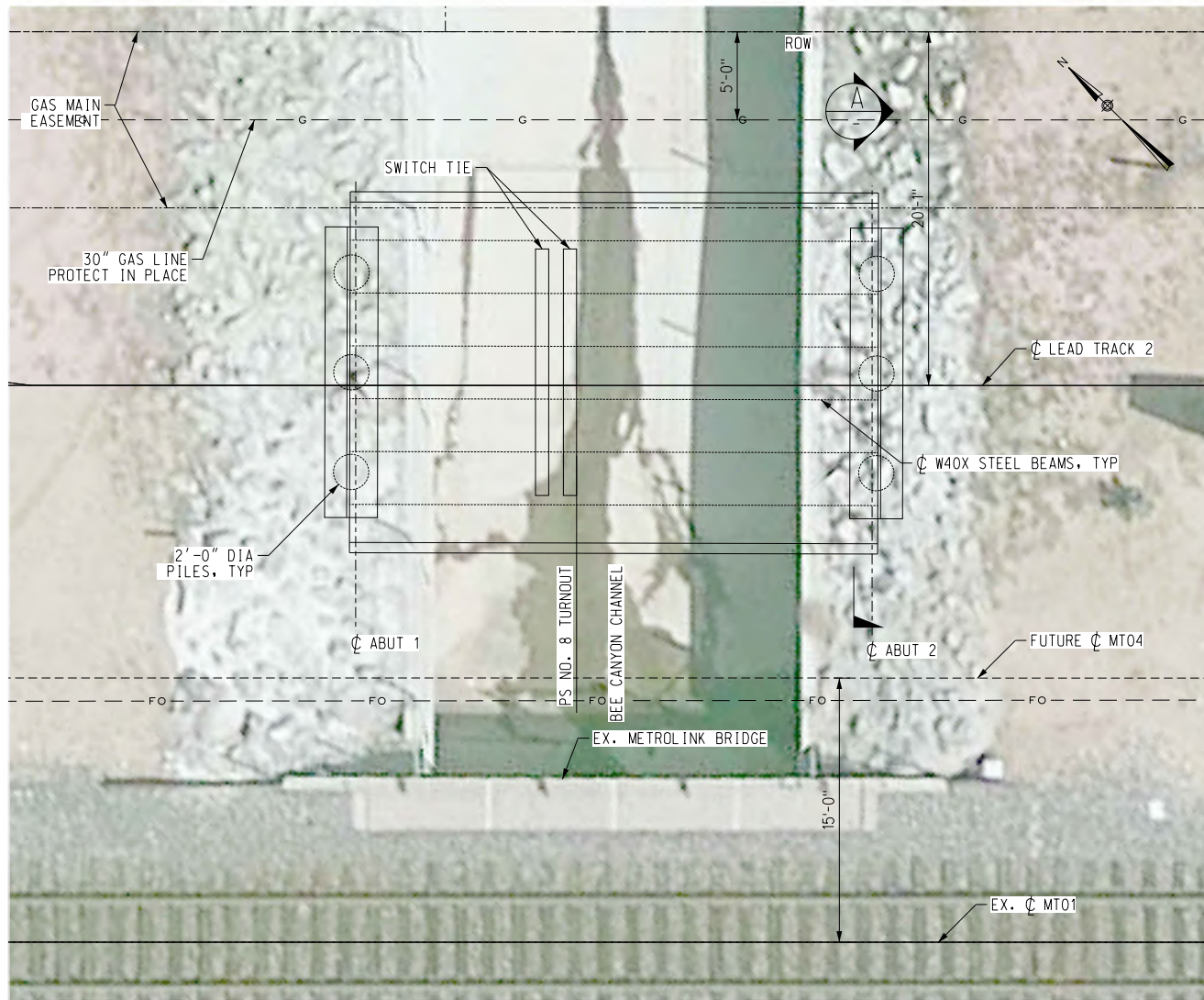


SUBMITTED: _____
 PROJECT MANAGER
 APPROVED: _____

METROLINK ORANGE COUNTY MAINTENANCE FACILITY PROJECT

OCMF SITE PLAN
 PHASE 2 LAYOUT
 SHEET 2 OF 2

| | |
|--------------------|--------------------|
| CONTRACT NO. | |
| DRAWING NO. CK-203 | |
| REVISION | SHEET NO. 14 OF 26 |
| SCALE AS SHOWN | |



NOTE:
 ALL BRIDGE DIMENSIONS AND SIZING SHOWN ARE CONCEPTUAL AND SUBJECT TO CHANGE PENDING GEOTECHNICAL INVESTIGATION AND STRUCTURAL DESIGN.

\$USERS
 \$TIMES
 \$DATE
 \$REV
 \$SHEET NO
 \$TOTAL SHEETS

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DESIGNED BY
S. RUGGLES
 DRAWN BY
S. RUGGLES
 CHECKED BY
S. MAGALLON
 APPROVED BY
A. SOKOL
 DATE
11-02-2018

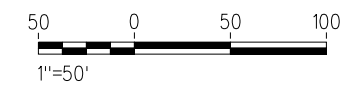
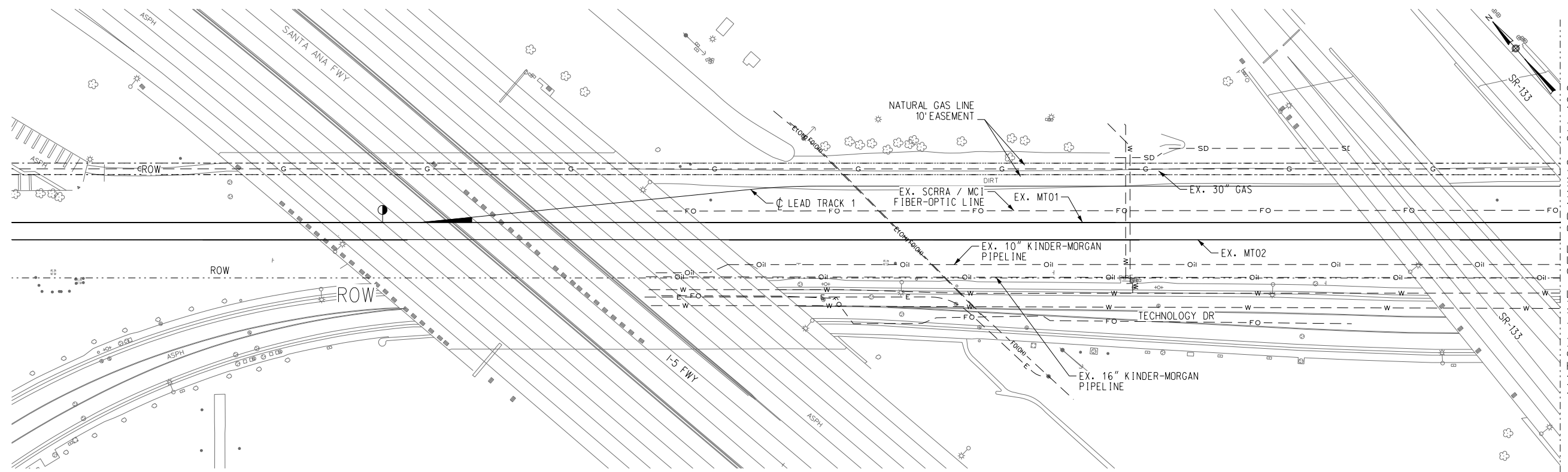


SUBMITTED: _____
 PROJECT MANAGER
 APPROVED: _____

METROLINK ORANGE COUNTY
MAINTENANCE FACILITY PROJECT
 BEE CANYON CHANNEL BRIDGE
 GENERAL PLAN AND ELEVATION

| | |
|--------------------|--------------------|
| CONTRACT NO. | |
| DRAWING NO. SB-101 | |
| REVISION | SHEET NO. 15 OF 26 |
| SCALE | |

| REV. | DATE | BY | SUB. | APP. |
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DESIGNED BY S. RUGGLES
 DRAWN BY S. RUGGLES
 CHECKED BY S. MAGALLON
 APPROVED BY A. SOKOL
 DATE 11-02-2018



SUBMITTED: _____
 PROJECT MANAGER
 APPROVED: _____

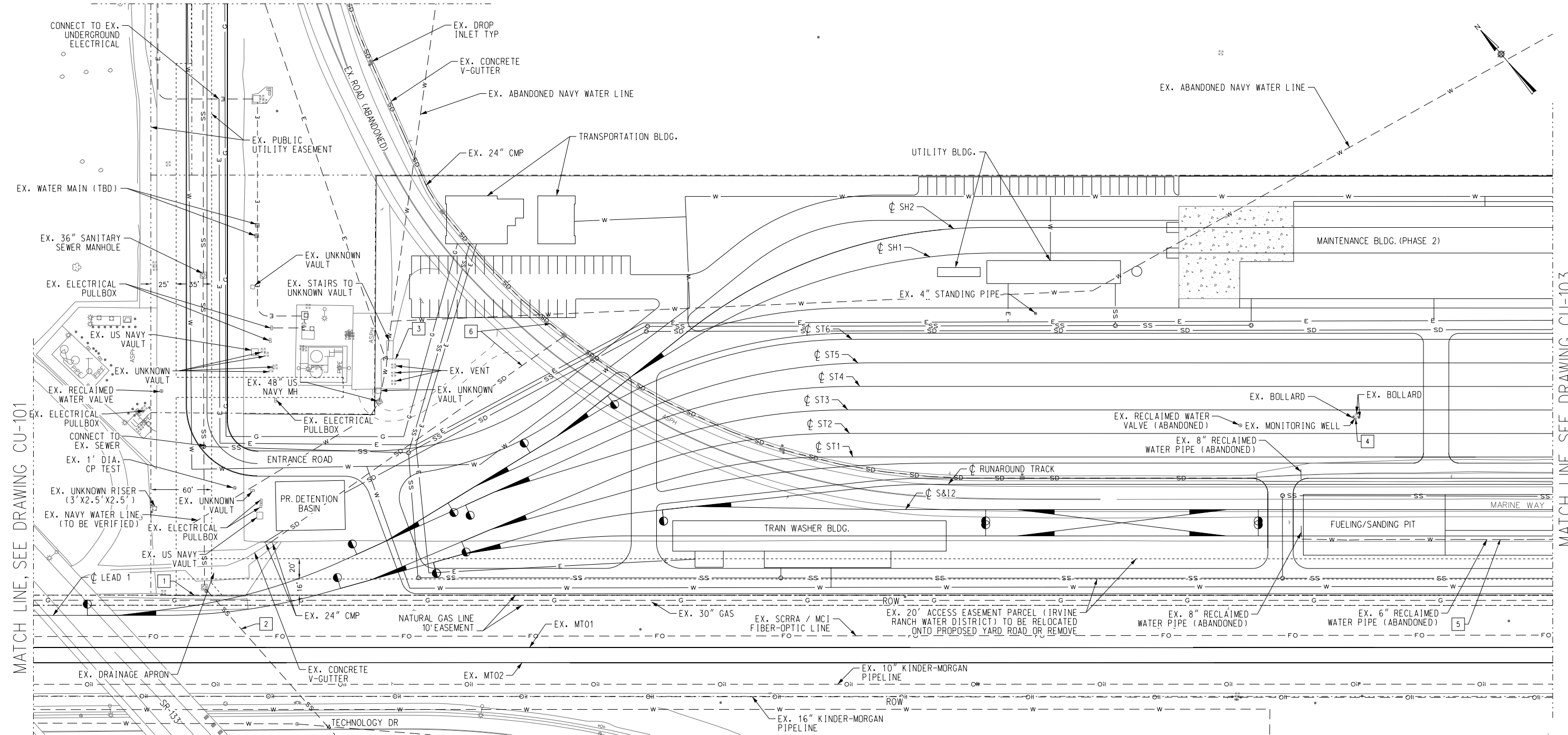
METROLINK ORANGE COUNTY
MAINTENANCE FACILITY PROJECT
 COMPOSITE UTILITY PLAN

SHEET 1 OF 5

| | |
|--------------------|-----------|
| CONTRACT NO. | |
| DRAWING NO. CU-101 | |
| REVISION | SHEET NO. |
| | 16 OF 26 |
| SCALE AS SHOWN | |

| REV. | DATE | BY | SUB. | APP. |
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| | | | | |

MATCH LINE, SEE DRAWING CU-105



MATCH LINE, SEE DRAWING CU-101

MATCH LINE, SEE DRAWING CU-103

CONSTRUCTION NOTES:

- 1 CONSTRUCT PROTECTIVE SLAB OVER EXIST 30" GAS LINE
- 2 ENCASE SANITARY SEWER UNDER PROPOSED LEAD TRACKS
- 3 ABANDONED VAULT AND RELATED FACILITIES TO REMAIN IN PLACE
- 4 RELOCATE GROUNDWATER MONITORING WELL
- 5 ABANDONED RECLAIMED WATER LINE
- 6 REMOVE STORM DRAIN LINE

NOTES:

- 1. PROVIDE CASING PER METROLINK ES 5001 AND 5002 WHERE UTILITIES CROSS THE TRACKS.
- 2. UNLESS OTHERWISE NOTED, UTILITIES ARE TO BE PROTECTED IN PLACE



DATE \$
SHEET NO. \$
SCALE \$

| REV. | DATE | BY | SUB. | APP. |
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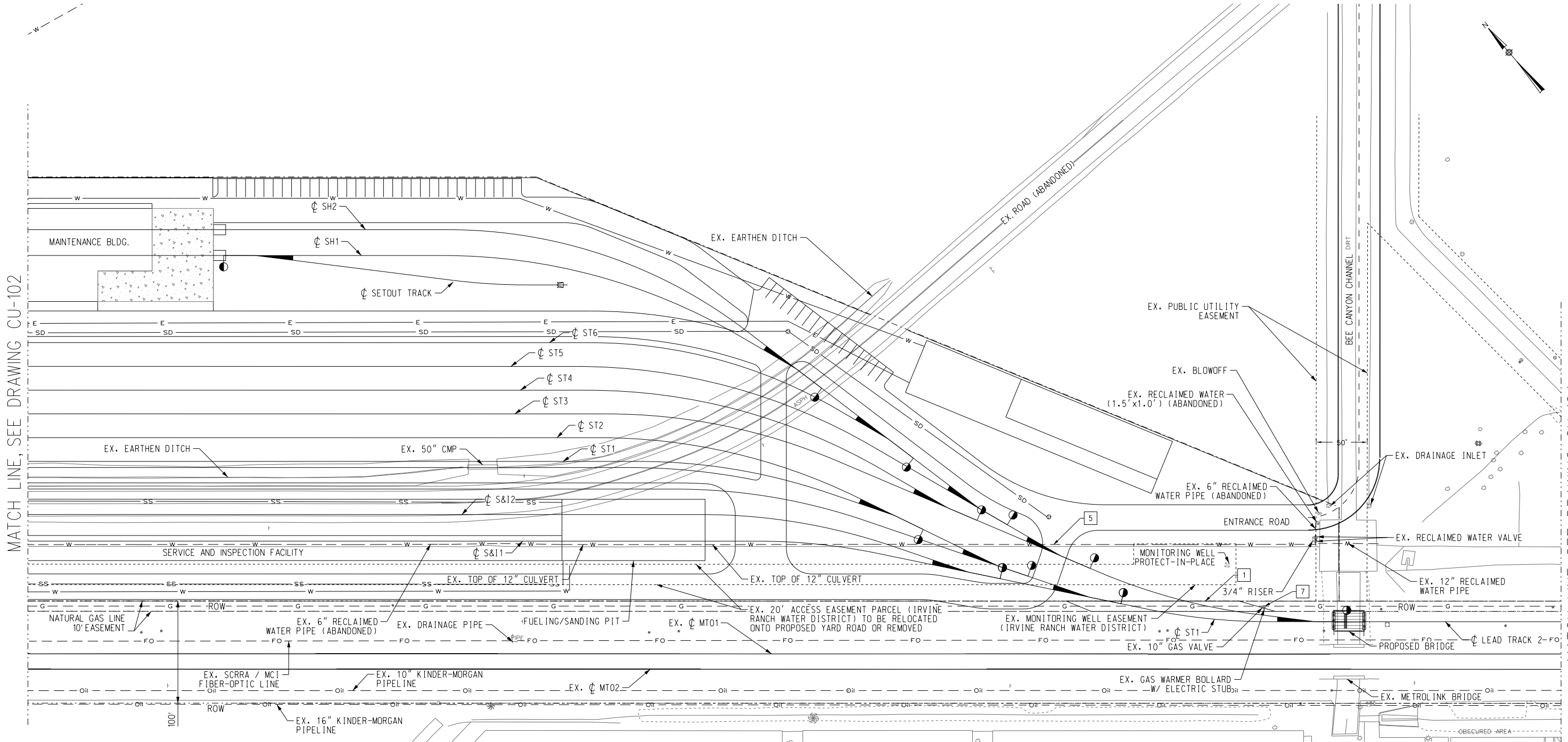
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DESIGNED BY S. RUGGLES
DRAWN BY S. RUGGLES
CHECKED BY S. MAGALLON
APPROVED BY A. SOKOL
DATE 11-02-2018

SUBMITTED: _____
APPROVED: _____
PROJECT MANAGER

METROLINK ORANGE COUNTY MAINTENANCE FACILITY PROJECT
COMPOSITE UTILITY PLAN
SHEET 2 OF 5

| | |
|--------------------|--------------------|
| CONTRACT NO. | |
| DRAWING NO. CU-102 | |
| REVISION | SHEET NO. 17 OF 26 |
| SCALE AS SHOWN | |



MATCH LINE, SEE DRAWING CU-102

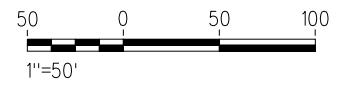
MATCH LINE, SEE DRAWING CU-104

CONSTRUCTION NOTES:

- 1 CONSTRUCT PROTECTIVE SLAB OVER EXIST 30" GAS LINE
- 5 ABANDONED RECLAIMED WATER LINE
- 7 RELOCATE GAS VALVE AND GAS WARMER BOLLARD APPROXIMATELY 200' NORTHWARD ALONG GAS LINE SUCH THAT MINIMUM 15 FT HORIZONTAL CLEARANCE FROM TRACK CENTERLINE IS PROVIDED.

NOTES:

- 1. PROVIDE CASING PER METROLINK ES 5001 AND 5002 WHERE UTILITIES CROSS THE TRACKS.
- 2. UNLESS OTHERWISE NOTED, UTILITIES ARE TO BE PROTECTED IN PLACE



\$USERS
 \$TIMES
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DESIGNED BY
S. RUGGLES

DRAWN BY
S. RUGGLES

CHECKED BY
S. MAGALLON

APPROVED BY
A. SOKOL

DATE
11-02-2018



SUBMITTED: _____
PROJECT MANAGER

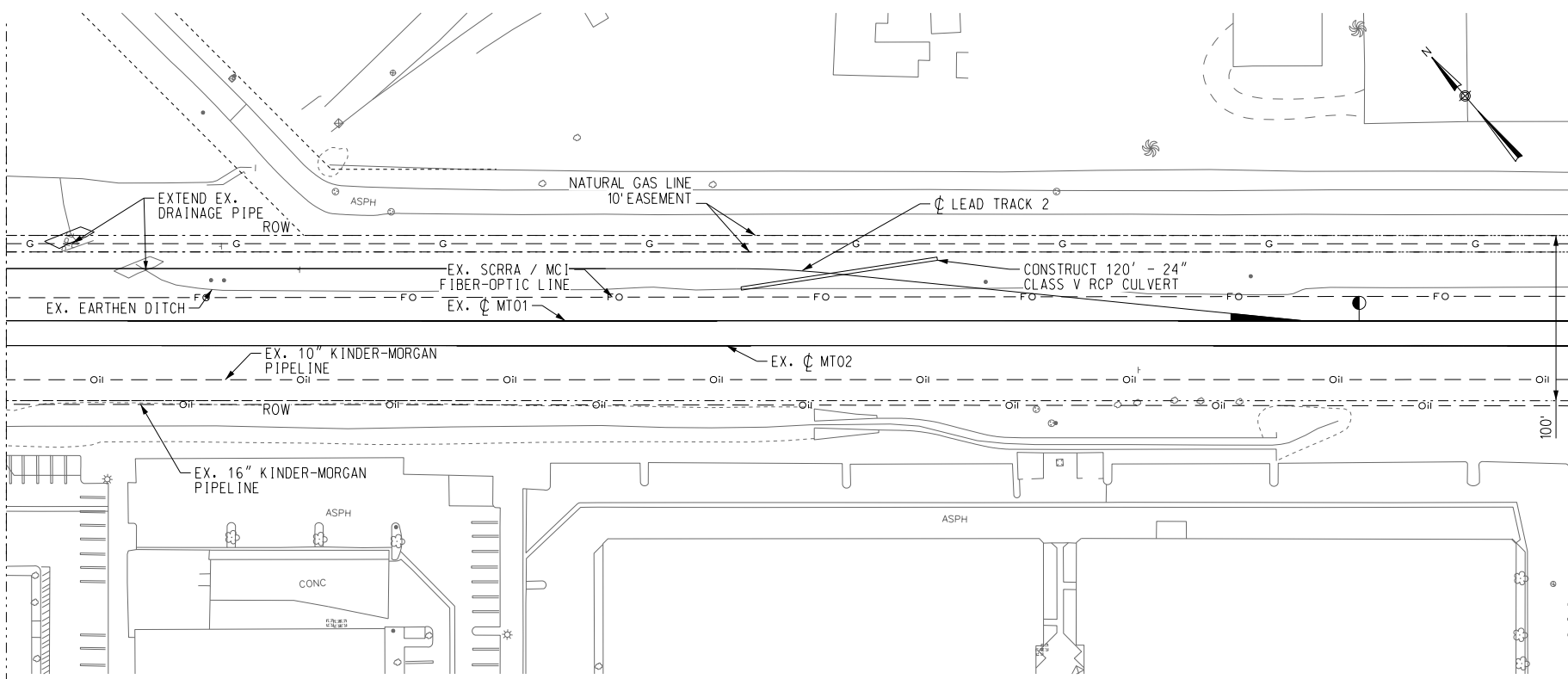
APPROVED: _____

**METROLINK ORANGE COUNTY
MAINTENANCE FACILITY PROJECT**
COMPOSITE UTILITY PLAN

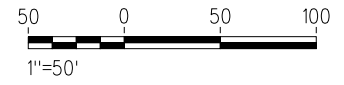
SHEET 3 OF 5

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| CONTRACT NO. | |
| DRAWING NO. CU-103 | |
| REVISION | SHEET NO. 18 OF 26 |
| SCALE AS SHOWN | |

MATCH LINE, SEE DRAWING CU-103



- NOTES:
1. PROVIDE CASING PER METROLINK ES 5001 AND 5002 WHERE UTILITIES CROSS THE TRACKS.
 2. UNLESS OTHERWISE NOTED, UTILITIES ARE TO BE PROTECTED IN PLACE



\$USERS
 \$TIMES
 \$DATE
 \$REV
 \$SHEET NO.
 \$PROJECT NO.

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DESIGNED BY S. RUGGLES
 DRAWN BY S. RUGGLES
 CHECKED BY S. MAGALLON
 APPROVED BY A. SOKOL
 DATE 11-02-2018



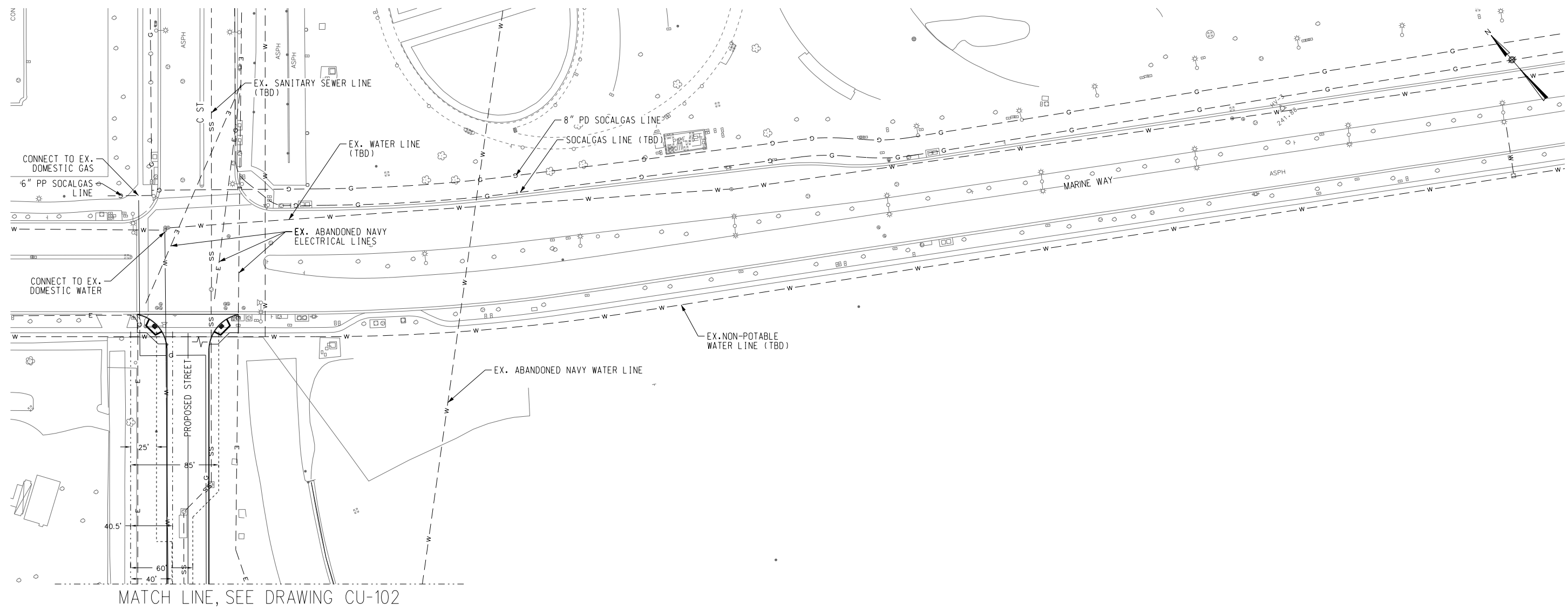
SUBMITTED: _____
 PROJECT MANAGER
 APPROVED: _____

METROLINK ORANGE COUNTY MAINTENANCE FACILITY PROJECT
 COMPOSITE UTILITY PLAN

SHEET 4 OF 5

| | |
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| CONTRACT NO. | |
| DRAWING NO. CU-104 | |
| REVISION | SHEET NO. 19 OF 26 |
| SCALE AS SHOWN | |

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| REV. | DATE | BY | SUB. | APP. |
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MATCH LINE, SEE DRAWING CU-102

\$USERS\$
 \$TIMES\$
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 \$REV\$
 \$BY\$
 \$APP\$

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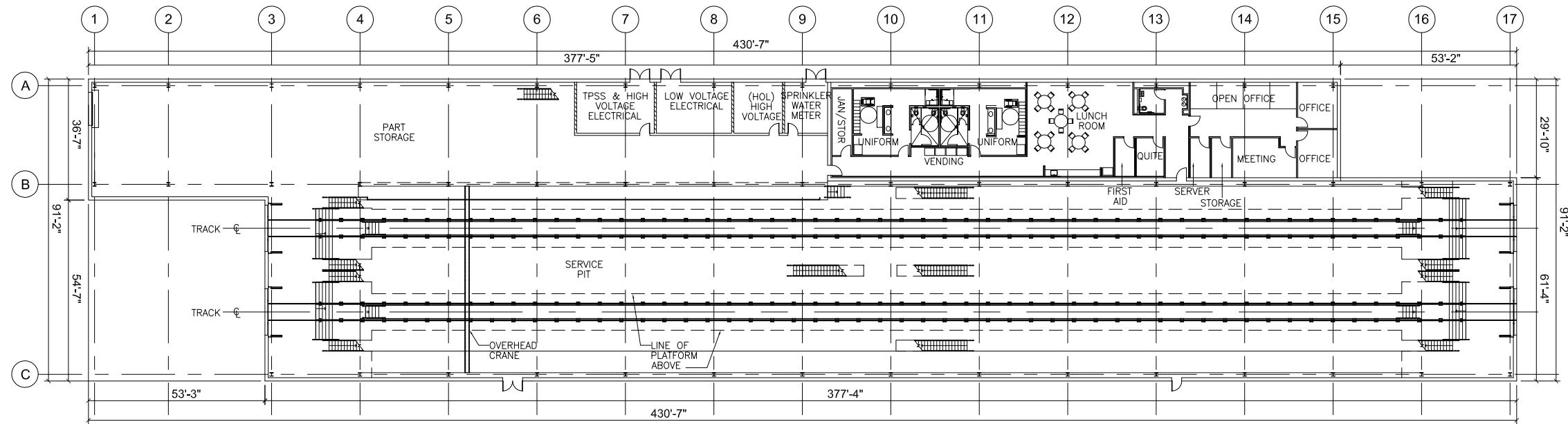
| | |
|-------------|-------------|
| DESIGNED BY | S. RUGGLES |
| DRAWN BY | S. RUGGLES |
| CHECKED BY | S. MAGALLON |
| APPROVED BY | A. SOKOL |
| DATE | 11-02-2018 |



SUBMITTED: _____ PROJECT MANAGER
 APPROVED: _____

**METROLINK ORANGE COUNTY
 MAINTENANCE FACILITY PROJECT**
 COMPOSITE UTILITY PLAN

| | |
|--------------|-----------|
| CONTRACT NO. | |
| DRAWING NO. | |
| REVISION | SHEET NO. |
| | 20 OF 26 |
| SCALE | |
| AS SHOWN | |



MAINTENANCE BUILDING
SCALE: 1" = 20'-0"

1
AA-100



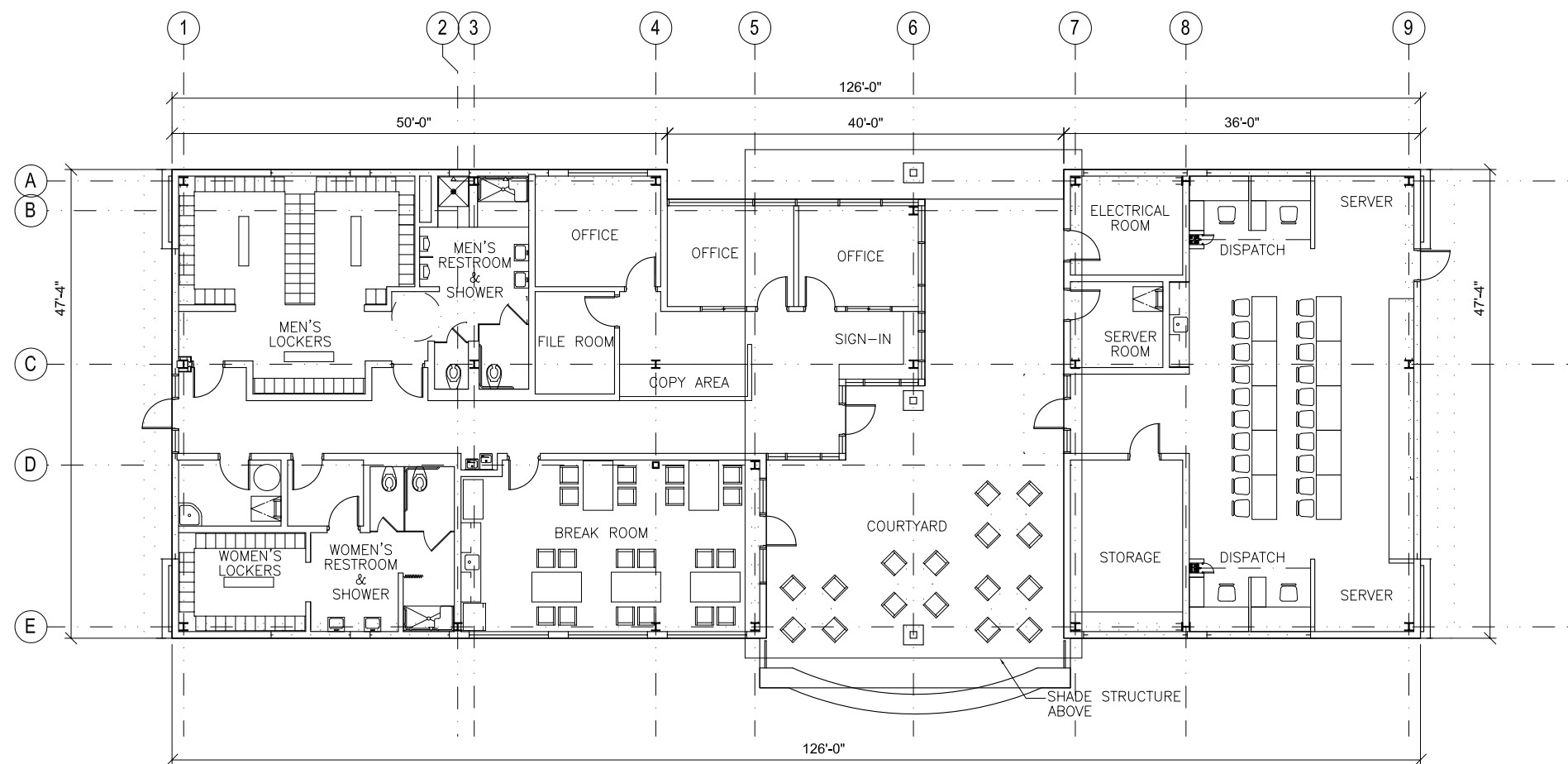
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| | | BY: _____ SUB: _____ APP: _____ | DESIGNED BY S. FIERCE DRAWN BY S. FIERCE CHECKED BY J. YEAGER APPROVED BY M. PETERSON DATE 11-02-2018 |

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|-------------------------------------|--|
| METROLINK ® | |
| SUBMITTED: _____ PROJECT MANAGER | |
| APPROVED: _____ | |

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| METROLINK ORANGE COUNTY MAINTENANCE FACILITY PROJECT | |
| MAINTENANCE BUILDING OVERALL FLOOR PLAN | |

| | |
|--------------------|--------------------|
| CONTRACT NO. | |
| DRAWING NO. AA-100 | |
| REVISION | SHEET NO. 21 OF 26 |
| SCALE | AS SHOWN |



TRANSPORTATION BUILDING 1
SCALE: 1" = 8'-0" AB-100



\$USERS\$
 \$TIMES\$
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 \$SCHEDULE\$
 \$SPECS\$
 \$REV\$
 \$APP\$

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| NOT FOR CONSTRUCTION | |
| REV. | DATE |
| | |
| BY | APP. |

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DESIGNED BY
S. FIERCE

DRAWN BY
S. FIERCE

CHECKED BY
J. YEAGER

APPROVED BY
M. PETERSON

DATE
11-02-2018

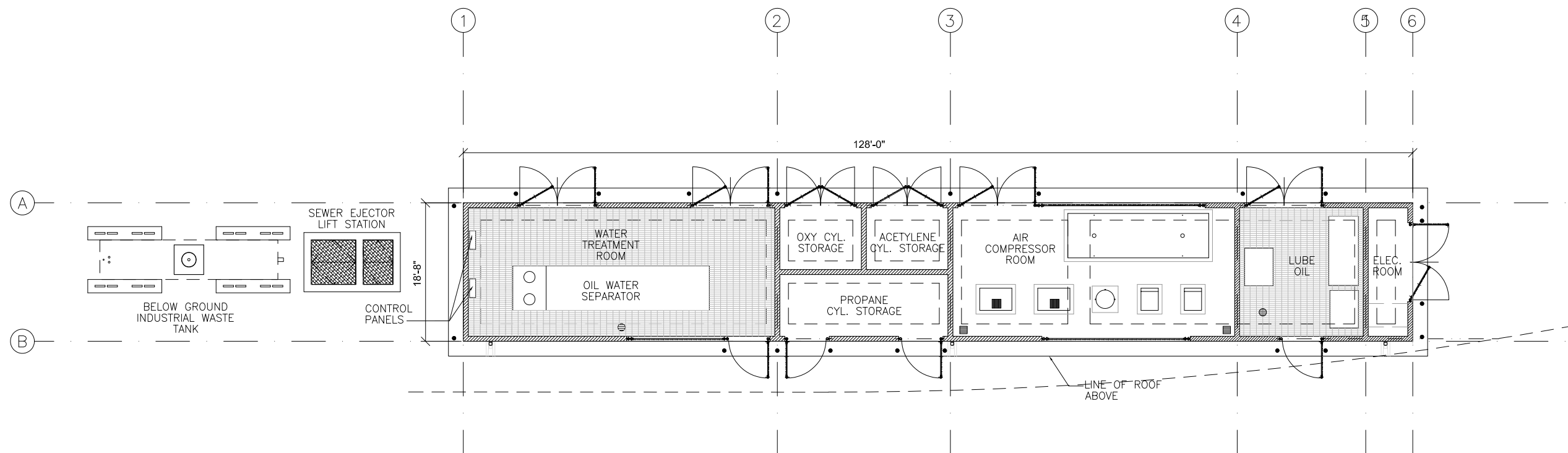
SUBMITTED: _____ PROJECT MANAGER

APPROVED: _____

METROLINK ORANGE COUNTY
 MAINTENANCE FACILITY PROJECT

TRANSPORTATION BUILDING
 OVERALL FLOOR PLAN

| | |
|--------------------|--------------------|
| CONTRACT NO. | |
| DRAWING NO. AB-100 | |
| REVISION | SHEET NO. 22 OF 26 |
| SCALE AS SHOWN | |



UTILITY BUILDING
SCALE: 1" = 8'-0"

1
AC-100

\$USERS\$
 \$TIMES\$
 \$DATE\$
 \$REV\$
 \$BY\$
 \$APP\$

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DESIGNED BY
S. FIERCE

DRAWN BY
S. FIERCE

CHECKED BY
J. YEAGER

APPROVED BY
M. PETERSON

DATE
11-02-2018



SUBMITTED: _____ PROJECT MANAGER _____
APPROVED: _____

**METROLINK ORANGE COUNTY
MAINTENANCE FACILITY PROJECT**

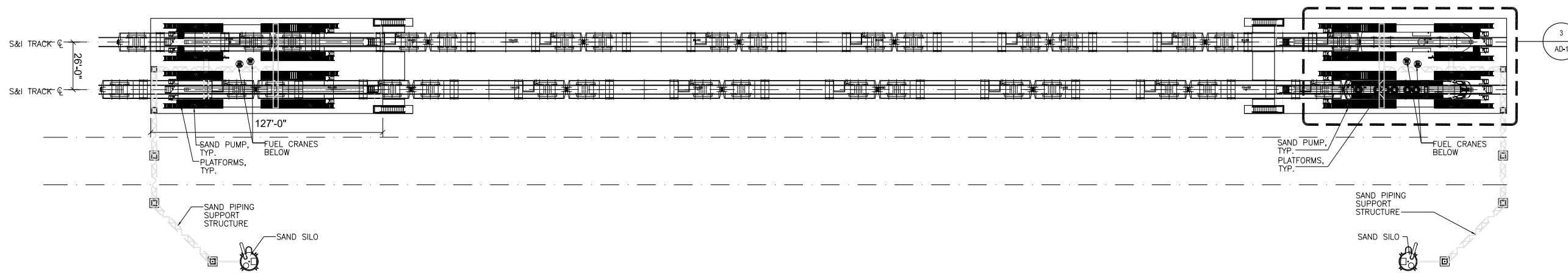
UTILITY BUILDING
OVERALL FLOOR PLAN

CONTRACT NO.
DRAWING NO. AC-100

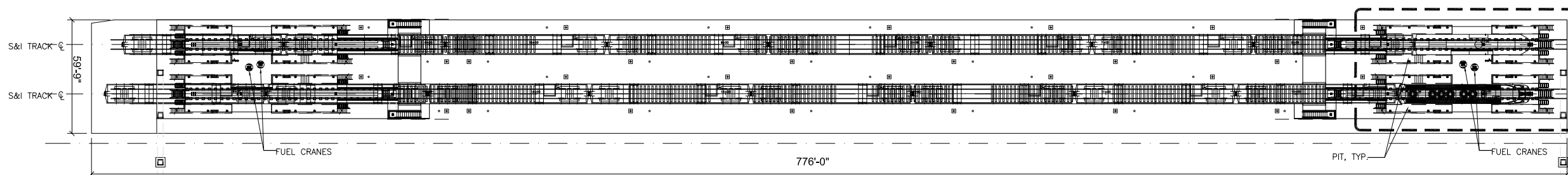
REVISION SHEET NO.
23 OF 26

SCALE AS SHOWN

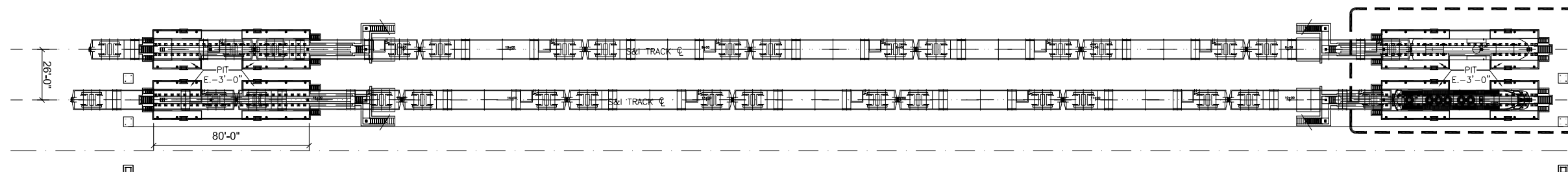
| REV. | DATE | BY | SUB. | APP. |
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S&I AREA - PLATFORM LEVEL **3**
SCALE: 1" = 32'-0" **AD-100**



S&I AREA - FLOOR LEVEL **2**
SCALE: 1" = 32'-0" **AD-100**

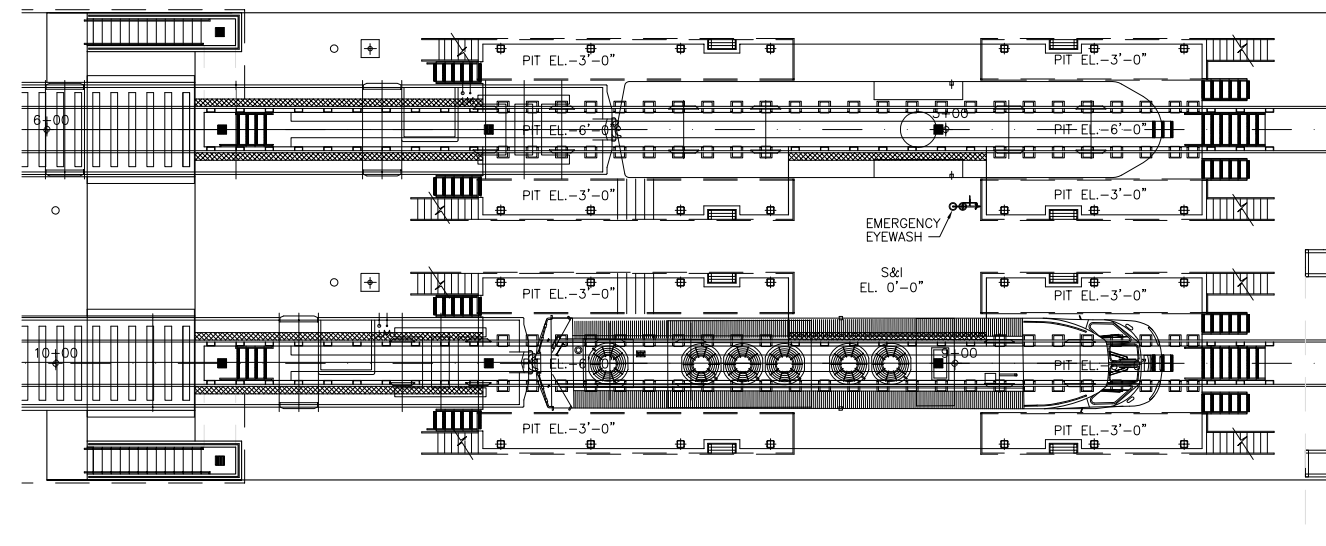
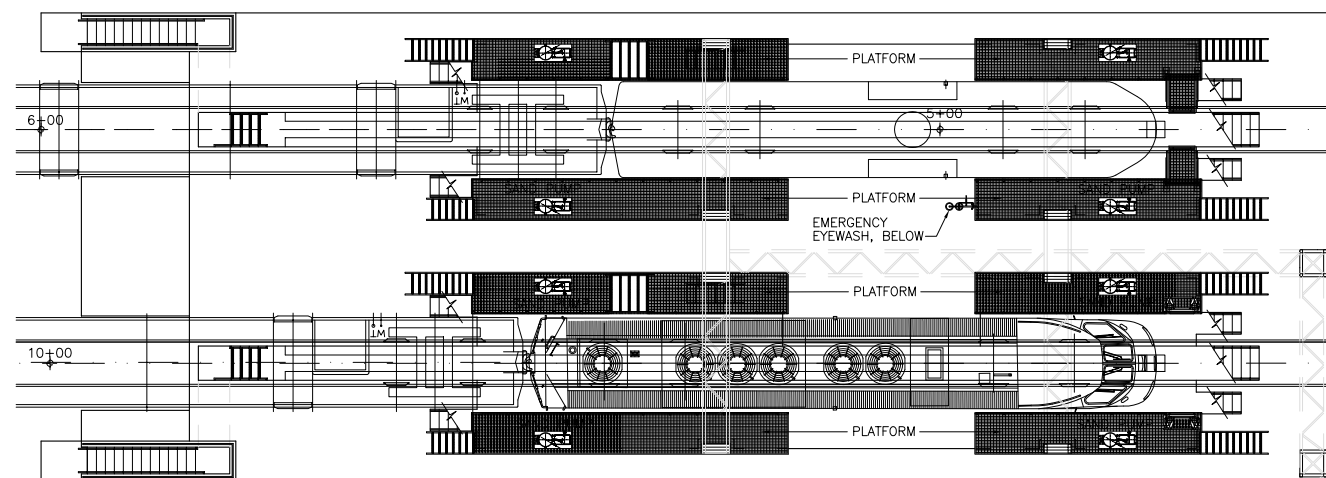


S&I AREA - PIT LEVEL **1**
SCALE: 1" = 32'-0" **AD-100**

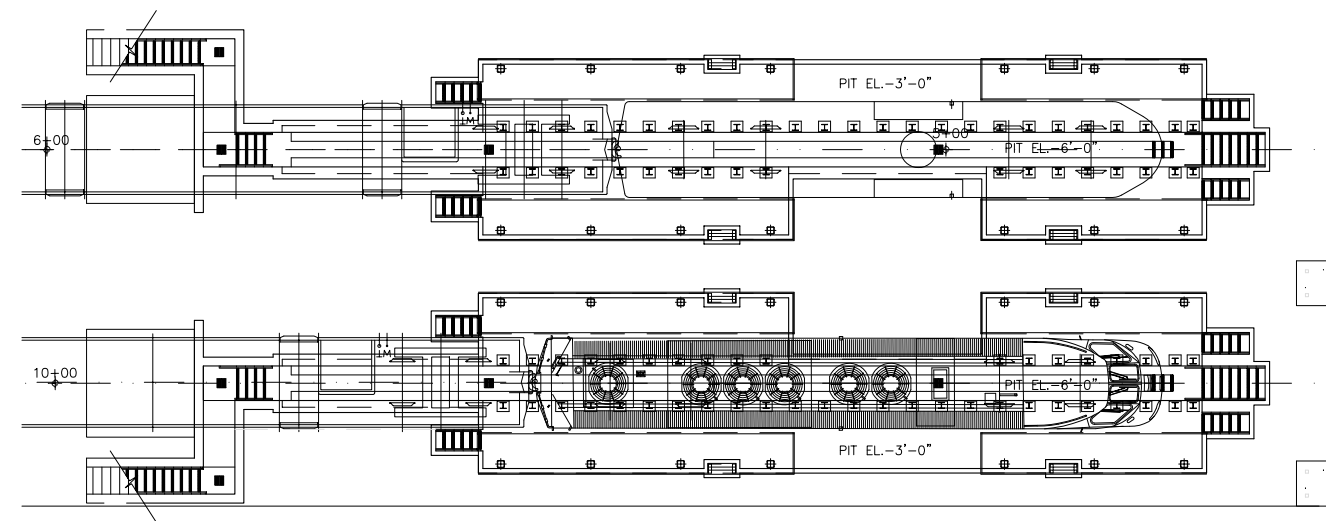
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| | | | | | | |
|---|------|--|---|--|---|--|
| 5% SUBMITTAL NOT FOR CONSTRUCTION | | INFORMATION CONFIDENTIAL: All plans, drawings, specifications, and/or information furnished herewith shall remain the property of the Southern California Regional Rail Authority and shall be held confidential and shall not be used for any purpose not provided for in agreements with the Southern California Regional Rail Authority. | DESIGNED BY S. FIERCE DRAWN BY S. FIERCE CHECKED BY J. YEAGER APPROVED BY M. PETERSON DATE 11-02-2018 | | METROLINK ORANGE COUNTY MAINTENANCE FACILITY PROJECT SERVICE & INSPECTION AREA OVERALL FLOOR PLANS | CONTRACT NO. AD-100 DRAWING NO. AD-100 REVISION SHEET NO. 24 OF 26 SCALE AS SHOWN |
| REV. | DATE | BY | APP. | | | |

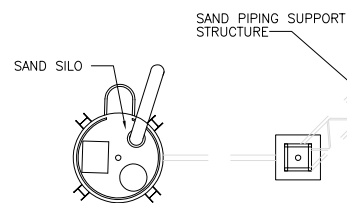
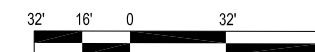
SUBMITTED: _____ PROJECT MANAGER
 APPROVED: _____



S&I AREA
ENLARGED FLOOR LEVEL
SCALE: 3/32" = 1'-0"
②
AD-101



S&I AREA
ENLARGED PIT LEVEL
SCALE: 3/32" = 1'-0"
①
AD-101



S&I AREA
ENLARGED PLATFORM LEVEL
SCALE: 3/32" = 1'-0"
③
AD-101

\$USERS
\$TIMES
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5% SUBMITTAL
NOT FOR CONSTRUCTION

INFORMATION CONFIDENTIAL:
All plans, drawings, specifications, and/or information furnished herewith shall remain the property of the Southern California Regional Rail Authority and shall be held confidential; and shall not be used for any purpose not provided for in agreements with the Southern California Regional Rail Authority.

DESIGNED BY
S. FIERCE
DRAWN BY
S. FIERCE
CHECKED BY
J. YEAGER
APPROVED BY
M. PETERSON
DATE
11-02-2018

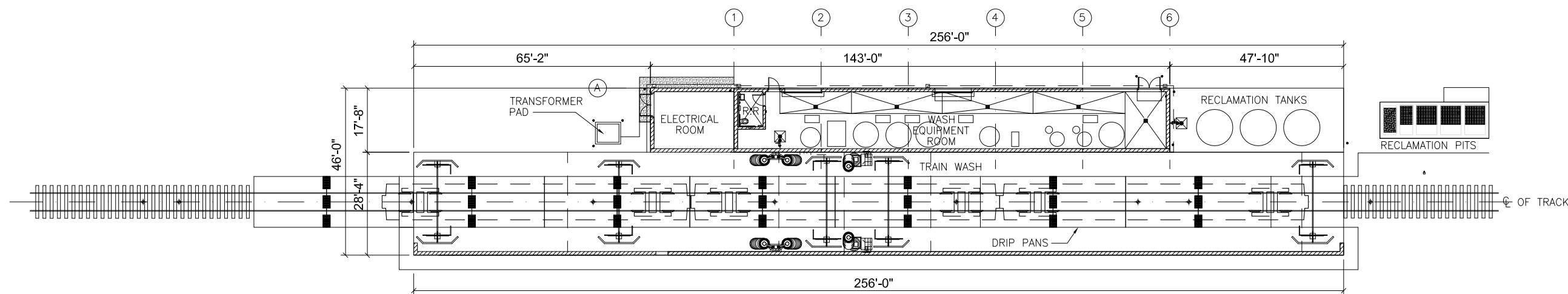


SUBMITTED: _____
PROJECT MANAGER
APPROVED: _____

**METROLINK ORANGE COUNTY
MAINTENANCE FACILITY PROJECT**
SERVICE & INSPECTION AREA
ENLARGED FLOOR PLANS

CONTRACT NO.
DRAWING NO. **AC-101**
REVISION SHEET NO.
25 OF 26
SCALE
AS SHOWN

| REV. | DATE | BY | SUB. | APP. |
|------|------|----|------|------|
| | | | | |



TRAIN WASH
SCALE: 1" = 16'-0"

1
AF-100

\$USERS\$
 \$TIMES\$
 \$DATE\$
 \$REV\$
 \$BY\$
 \$APP\$

5% SUBMITTAL
NOT FOR CONSTRUCTION

INFORMATION CONFIDENTIAL:
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J. YEAGER

APPROVED BY
M. PETERSON

DATE
11-02-2018



SUBMITTED: _____
PROJECT MANAGER

APPROVED: _____

**METROLINK ORANGE COUNTY
MAINTENANCE FACILITY PROJECT**

TRAIN WASH
OVERALL FLOOR PLAN

CONTRACT NO.
DRAWING NO. **AF-100**

REVISION SHEET NO.
26 OF 26

SCALE
AS SHOWN

| REV. | DATE | BY | SUB. | APP. |
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ATTACHMENT D
INITIAL ENVIRONMENTAL REVIEW
(BY OCTA)

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ORANGE COUNTY METROLINK FACILITY PRELIMINARY ENVIRONMENTAL EVALUATION

1. Project Information

| | | |
|--|------------------|-----------------------------|
| Agency(ies) Metrolink/OCTA | County Orange | MILEPOST 183.50 – 184.00 |
| Project Title: Metrolink Orange County Maintenance Facility (OCMF) Project | | |

2. Project Description

Background

The expansion of Orange County and overall Metrolink commuter rail service will ultimately require additional or expanded equipment servicing capabilities for both locomotives and rail cars. Since a significant portion of the fleet will be in Orange County, a maintenance facility located along the Metrolink route through Orange County would be the optimal location as it would reduce operating costs by limiting non-revenue moves to the existing Southern California Regional Rail Authority (SCRRA) storage and maintenance facilities in the cities of Los Angeles and San Bernardino. The proposed maintenance facility will provide equipment to inspect, clean, and maintain cars and locomotives on a regular and efficient basis. Much of the inspection and maintenance activity is federally mandated and must be performed at specific intervals.

The location of the project is on a 21.3-acre OCTA-owned parcel in the City of Irvine, adjacent to Marine Way. The project site is a closed military base (MCAS El Toro) formerly owned by the United States Department of the Navy (Navy). After MCAS El Toro was closed, the site was quitclaimed by the Navy to Heritage Fields El Toro, LLC in 2011, and then by way of grant deed conveyed by Heritage Fields to the City of Irvine that same year. OCTA then purchased the fee ownership of the project site from the City of Irvine. Regional vehicle access to the project site is from Interstate 5 (I-5) at Sand Canyon Avenue. Local vehicle access is via Marine Way to Ridge Valley.

The property is currently vacant and includes storage for miscellaneous rail equipment including: temporary railroad bridges, signal houses, railroad ties, and electrical conduits. Although not part of the project site, OCTA has immediate plans to install a single 1,000-foot long single-ended storage track and fencing the perimeter of the property. The connection of the storage track to the mainline will be with a left-hand No. 10 turnout that would feed into and out of the yard site from the north end.

The project includes additional train storage tracks, daily locomotive and car service platforms, pits and platforms for inspection and maintenance, and a service building with overhead cranes. Service platforms will include facilities for inspection, fueling and sanding, toilet service, interior car cleaning, and a train washer. Additional facility components will include office space, welfare spaces for crews and facility staff, parts storage and management, water treatment, parking access roads, and security. Connection tracks between the various service areas, storage locations, and the main tracks will be provided to assure optimal operational flexibility.

Purpose and Need

The purpose of the project is to meet the rolling stock servicing and storage needs to accommodate the expanding fleet size necessary to fulfill the planned operating needs in the future. Specifically, the project will evaluate sizing and layout for an equipment maintenance and storage facility in Irvine, California, that will meet expanded operational needs in the year 2028 as identified in Metrolink's Southern California Optimized Rail Expansion (SCORE) program.

Metrolink currently operates three maintenance facilities across its service area. Its Central Maintenance Facility (CMF) is located on the east bank of the Los Angeles River near the Interstate 5 and Interstate 10 freeways, just south of the location of the former Southern Pacific Taylor Yard. The Eastern Maintenance Facility is located in San Bernardino and provides daily and routine servicing for San Bernardino Line trains. Metrolink trains are also serviced at North County Transit District's (NCTD's) Stuart Mesa Facility, which is located between San Clemente Pier and Oceanside at the southwest end of Camp Pendleton, in San Diego County.

The CMF is currently near capacity, which will impact the ability to provide the necessary train servicing for planned service-expansion of various Metrolink lines throughout the system under the SCORE program. By transferring a portion of the current fleet from CMF to the proposed OCMF (specifically the Orange County Line trains), capacity for the non-Orange County trains will be increased at CMF. The Orange County Line has the highest ridership within the Metrolink system; therefore, a maintenance facility to serve the Orange County area with sufficient storage and servicing capabilities for both locomotives and rail cars is critical to controlling operating costs. In order to optimize rail service in the region, the proposed facility development would need to be completed by 2028. The SCORE program may also require heavy overhaul capabilities at OCMF, depending on pending decisions regarding fleet technology and management.

Description of Work/Alternatives

As described below, the proposed project is envisioned to be implemented in two phases. For the purposes of the analysis, including the California Environmental Quality Act (CEQA) analysis, the proposed project will consider a no build option and a project option (which include both phases). The no build option would assume this project would not be built; however, other projects already planned would still be implemented. The project option would consider the context of the proposed action in conjunction with other planned projects in the vicinity. Both phases of the proposed project will be analyzed as a singular action for its potential impacts under CEQA.

No Build Alternative

The No Build Alternative would not provide any improvements on the OCMF site. The project site would remain in its current vacant condition. Existing and proposed adjacent developments would remain unchanged. The environmental review will consider the effects of not implementing the proposed project.

Build Alternative

As noted above, the proposed project is envisioned to be implemented under two phases (Phase 1 and Phase 2). The phases are described below:

Phase 1

This phase focuses on developing facilities needed for the storage and routine cleaning, inspection and servicing of the anticipated trainsets. The Phase 1 layout situates the train wash, fueling/sanding, and service and inspection tracks on the two tracks with the greatest tangent length, which are the ones nearest the railroad ROW. This is important in fitting a second fueling/sanding facility so that there is one at each end of the service and inspection platform to support having the locomotive at either end, all within tangent track.

All storage tracks and appurtenant features (air, water, head end power and toilet dump facilities) would be constructed. The storage tracks would be built near the middle of the site east of the service and inspection tracks.

A runaround track would be provided between the service and inspection tracks and storage tracks. Additionally, two temporary stub-ended set out tracks would be provided in the Phase 1 layout that occupies the footprint of the future shop tracks (one at the north and one at the south end of the yard). These set out tracks would be converted to shop access tracks in Phase 2 and therefore, would no longer be available as set out tracks. A new set out track will then be provided as part of Phase 2.

An administration building is also included in Phase 1. This building would house managerial offices, welfare spaces for train crews and on-site personnel. This facility will include restrooms, showers, locker rooms, a break/day room, vending space and a kitchenette.

Parking will be provided for staff reporting to the site. Fire department compliant roadways will be developed to permit circulation of the site for Metrolink vehicles as well as delivery trucks (sand and fuel).

Phase 2

This phase completes the full build out of the yard. It will include development of the maintenance shop building and materials and equipment storage facilities along the eastern part of the site (furthest from the existing railroad ROW). The shop will have capabilities to perform regular three-month, six-month and one-year preventive maintenance cycles for trainsets.

3. Anticipated Environmental Approval

Check the anticipated environmental determination or document for the proposed project in the table below.

| CEQA | | NEPA | |
|---|-------------------------------------|---|-------------------------------------|
| Environmental Document | | | |
| Initial Study with proposed Negative Declaration (ND) or Mitigated ND | <input checked="" type="checkbox"/> | Environmental Assessment with proposed Finding of No Significant Impact | <input checked="" type="checkbox"/> |
| | | Complex Environmental Assessment with proposed Finding of No Significant Impact | <input type="checkbox"/> |
| Environmental Impact Report | <input type="checkbox"/> | Environmental Impact Statement | <input type="checkbox"/> |
| Anticipated CEQA Lead Agency: Anticipated NEPA Lead Agency: | | OCTA FTA | |
| Estimated length of time for environmental approval: | | 18 to 24 months | |

4. Special Environmental Considerations

The following is a brief summary of the special considerations that may affect project delivery:

- Focused or preconstruction surveys for sensitive biological resources (primarily narrow endemic and rare plants) may need to be conducted during the appropriate season.
- Construction windows for vegetation clearing limited to outside of the migratory bird nesting season, may be required to avoid impacts to nesting birds.
- There is a potential that paleontological resources could be found at depths greater than five feet. It is anticipated that a paleontological monitor will be needed in areas where previously undisturbed sediments or bedrock are present or where the depth of excavation would exceed five feet.
- It is anticipated that the project would require a Section 401 Water Quality Certification, Section 404 Nationwide Permit, and Section 1602 Streambed Alteration Agreement. It is not anticipated that any special circumstances will be identified that would require any more than standard processing times for these permitting activities. If impacts to federal jurisdictional waters are less than 0.1 acre, then a non-notifying Section 404 Permit would likely be applicable.
- As a result of the former uses of the project site as a military base and for agricultural production, there is known contamination on the site. A limited Phase II Environmental Site Assessment (ESA) to assess the potential for chemicals will be needed during the environmental studies phase of the project.
- The project site is located over the Regional Water Quality Control Board's (RWQCB's) El Toro Marine Base Groundwater Plume Protection Boundary. The Department of the Navy is in the process of remediating the contamination. However, protection of the two ground water monitoring wells will be required.

Additionally, the plume will be a constraint on any sort of dewatering and limits infiltration of the storm water runoff.

- A 30-inch diameter high pressure gas line (i.e., the Southern California Gas Company line) runs longitudinally along the east edge of the railroad right-of-way. The project will cross this line in two locations. Necessary accommodations for the line will require coordination with the Southern California Gas Company.
- The project will cross the 2-inch fiber optic line located along the east edge of the railroad right-of-way in two locations. Coordination with the owner of the utility (MCI Communications) will be required to protect the fiber optic line in place.

5. Anticipated Environmental Commitments

Specific avoidance, minimization, and/or mitigation measures/commitments and associated quantitative time and costs cannot be definitely determined at this time since the technical studies have not been initiated. For the purposes of this PEAR, it is anticipated that avoidance, minimization, and/or mitigation measures/commitments would consist of those measures that minimize project-related impacts typically utilized for similar projects. Below is a list of anticipated environmental commitments by impacted resource.

Traffic: The proposed project would require the preparation of a Traffic Management Plan (TMP).

Cultural Resources: The project may impact archaeological resources. It is anticipated that a Cultural Technical Memorandum will be required for the proposed project.

Visual: To reduce potential visual impacts, environmental commitments could include project design features such as structural enhancements to walls, decorative architectural features such as light standards, or softscape treatments such as revegetation or other landscape treatments.

Water Quality and Erosion: Temporary and permanent best management practices (BMPs) would be implemented to minimize the erosion of exposed soils and resultant sediment and surface contaminant loading into the storm drain system and downstream water bodies. The project would require a Storm Water Pollution Prevention Plan (SWPPP) since the disturbed soil area is more than one acre.

Paleontology: A project level paleontological memorandum should be prepared to address potential impacts of the project. Based on the findings of the paleontological memorandum, a Paleontological Mitigation Plan (PMP) may also be required. Any measures arising from the PMP would need to be incorporated into the proposed project commitments.

Hazardous Waste: Based on the findings of the ESA, the following environmental investigations are recommended to be performed during the environmental phase:

- A limited Phase II ESA to assess the potential presence of residual agricultural chemicals resulting from the former agricultural site use.

- Although not considered a recognized environmental condition (REC), an inaccessible vault which leads to a bunker is present on the northwest portion of the Site. It is unknown whether environmental conditions are present within the bunker.
- Assessment of the interior of the vault and bunker for the presence of environmental conditions.
- If structures are to be constructed on project site, prior to construction, it is recommended that soil vapor sampling be performed to assess the potential for vapor off-gassing associated with existing groundwater contamination beneath the property.

Air Quality: The proposed project would need to incorporate the control measures identified in the South Coast Air Quality Management District (SCAQMD) amended Rule 403 during construction to control fugitive dust. The project will need to undertake an air quality analysis to determine the potential impacts with its construction and operation.

Depending on the disposition of the County's, *El Toro, 100-Acre Parcel Development Plan* (100-Acre Plan) project, the air quality analysis may need to factor in potential mixed-use development at a site adjacent to the proposed project site. The 100-Acre Plan allows for flexibility in the placement of land uses, including multi-family residential and hotel uses. Pending the outcome of the 100-Acre Plan, impacts resulting from the project's construction and operation may need to be analyzed in relation thereto. A key consideration would be the placement of the approved multi-family residential and hotel uses within the 100-Acre Plan in relationship to the project site. Additionally, the City of Irvine and others are currently in litigation with the County over the proposed 100-Acre Plan. In general the litigation challenges the County's authority to use the site for commercial uses. Determination of the specific air quality analysis methodology would be made during the environmental phase based on the air quality analysis conducted for the project.

Noise: There are currently no sensitive receptors near the proposed project site. However, as noted the 100-Acre Plan includes mixed use residential and hotel uses. Depending on the disposition of the 100-Acre Plan and whether it is a reasonably foreseeable use, noise impacts resulting from the project's construction and operation may need to be analyzed in relation thereto. A key consideration would be the placement of the approved multi-family residential and hotel uses within the 100-Acre Plan in relationship to the project site and the height of soundwalls and other noise attenuation used in the development of the noise sensitive uses. Determination of the need for and the placement of new or modified sound walls would be made during the environmental phase based on the noise analysis.

Biological Resources: Although the site vegetation is predominately ruderal, if construction activities cannot occur outside of the avian nesting season (February 1st to August 31st), a pre-construction nesting bird clearance survey shall be conducted within three days prior to ground disturbance. The construction area and adjacent areas within 500 feet of the project site will be surveyed by a qualified biologist.

If an active nest is found, the bird shall be identified by species and the approximate distance from the closest work site to the nest shall be estimated. The nest trees shall be

monitored until all nests have been abandoned (for non-project related reasons) or the young have fledged. If no nesting birds are found on-site during this time period, construction activities may continue as planned. Once the young have fledged and left the nest, or the nest becomes inactive under natural conditions, construction activities may resume within the buffer area

Water permitting for this project is anticipated to include the following: (1) a Water Quality Certification under Clean Water Act (CWA) Section 401 through the Regional Water Quality Control Board (RWQCB), (2) a Nationwide Permit 14 or 39 or Individual Permit under CWA Section 404 through the United States Army Corps of Engineers (USACE), depending on the extent of impact to federal waters of the U.S. (WoUS), and (3) a Streambed Alteration Agreement under the California Department of Fish and Game (DFG) 1602 code through the California Department of Fish and Wildlife (CDFW). If impacts to federal jurisdictional waters are less than 0.1 acre then a non-notifying Section 404 Permit would likely be applicable.

6. Permits and Approvals

The following discussion outlines the anticipated resource/regulatory agency permits required for construction of the proposed project:

Water Quality Permits: The proposed project would be required to conform to all applicable water quality regulations and/or permit requirements of the State Water Resources Control Board (SWRCB), and the Santa Ana RWQCB, including but not limited to:

- General Construction Permit (Order No. 2009-0009-DWQ, as amended by Order No. 2010-0014-DWQ and Order No. 2012-0006-DWQ, NPDES No. CAS000002)
- Storm Water Pollution Prevention Plan (SWPPP)
- Statewide General Permit for Storm Water Discharges Associated with Industrial Activities, Order 2014-0057-DWQ

Regional Water Quality Control Board Section 401 Certification. The project site lies within Region 8 of the RWQCB (Santa Ana) jurisdiction. If the project results in any discharge of fill into or alterations (such as excavation) to WoUS, a certification waiver from the RWQCB must be provided to the licensing or permitting agency which shall include where the discharge originates or will originate.

USACE Section 404 Permit. The proposed project site contains drainages that are potentially subject to a federal water quality permit. The extent of the impacts resulting from the proposed project will dictate the level of involvement with the USACE. If the project involves the discharge of dredged or fill material into any WoUS, a Nationwide Permit under Section 404 of the CWA would be required from the USACE. If the project involves a total discharge of fill into WoUS of more than 0.5 acre or if the project does not meet the Nationwide Permit criteria, it would require an Individual Permit. If impacts to WoUS are less than 0.1 acre then a non-notifying Section 404 Permit would likely be applicable.

CDFW, Section 1602 of the California Fish and Game Code. The CDFW regulates any activity that will divert or obstruct the natural flow or alter the bed, channel, or bank of any

river, stream, or lake. CDFW also regulates any activity that will deposit or dispose of debris, wastewater, or other material containing crumbled, flaked, or ground pavement that may pass into any river, stream, or lake. If CDFW determines that the proposed project could affect a fish or wildlife resource, a Streambed Alteration Agreement would be required.

CDFW, Section 2080.1 or 2081(b) of the California Fish and Game Code per compliance with the California Endangered Species Act (Incidental Take Permit). If impacts to sensitive species would occur, then an Incidental Take Permit from CDFW for state-only listed species may need to be obtained under Section 2081(b) of the California Fish and Game Code. If the species is both federal and state listed, compliance with the Federal Endangered Species Act may satisfy the California Endangered Species Act if the CDFW determines that the incidental take authorization is “consistent” under Section 2080.1 of the California Fish and Game Code.

U.S. Fish and Wildlife Service (USFWS), Section 7 of the Federal Endangered Species Act. If impacts to a Federal listed species would occur, then consultation with the USFWS and a Biological Opinion (BO) may be required. A BO is a written document with USFWS’ opinion that the issuance of the permit is not likely to jeopardize the continuous existence of any protected plant or animal species.

A Phase I ESA has previously been performed on the 21.3-acre site in 2014. The Phase I ESA did not identify RECs in relation to the project site, with the exception of the following:

- Former agricultural use and the potential for residual chemicals to be present in shallow soil
- Known groundwater contamination and potential resultant vapor off-gassing associated with the former Marine Corps Air Station (MCAS), El Toro.
- Although not considered a REC, an inaccessible vault, which leads to a bunker is present on the northwest portion of the Site. It is unknown whether environmental conditions are present within the bunker.

Based on these conclusions, the 2014 ESA recommended the following:

- A limited Phase II ESA to assess the potential presence of residual agricultural chemicals resulting from the former agricultural Site use; and
- If structures are to be constructed on the project site, prior to construction, it is recommended that soil vapor sampling be performed to assess the potential for vapor off-gassing associated with existing groundwater contamination beneath the property.
- Assessment of the interior of the vault and bunker for the presence of environmental conditions.

A Final Finding of Suitability to Transfer (FOST) was prepared in February 2011. The purpose of this FOST was to summarize how the requirements and notifications for hazardous substances, petroleum products, and other regulated material within Carve-Outs (COs) I-D, I-Q, I-R, II-B, II-K, II-N, II-O, III-B-1, III-B-2, III-E, and III-F at the former MCAS El Toro have been satisfied by the Navy. Through the Base Realignment and

Closure (BRAC) process, the Navy transferred, by deed(s), certain former MCAS El Toro real property. As noted above, the project site is a portion of real property transferred by the Navy. Other real property known as COs were retained by the Navy, pending further investigation and cleanup to support determinations that the property is environmentally suitable for transfer. This FOST was prepared in accordance with the Department of the Navy Base Realignment and Closure Program Management Office Policy for Processing Findings of Suitability to Transfer or Lease (BRAC 2008), Base Redevelopment and Realignment Manual (Department of Defense [DoD] 2006), and is consistent with the DoD Base Redevelopment and Implementation Manual (DoD 1997).

The Navy has two groundwater monitoring wells on the project site. These wells monitor the contamination of groundwater sources that is the result of operations at the former Naval Air Station. Groundwater cleanup and monitoring is expected to be ongoing for the next 30 years, based upon current readings. Based upon the proposed improvements, at least one well appears to be in need of relocation. The Navy has indicated that well relocation is not problematic but will need to be coordinated with them. The Navy and its agents will continue to need access to these wells to conduct maintenance and inspection which occur semi-annually and require several hours for each well. Inspection and maintenance activities are conducted by two people and require pickup truck access. Well relocation would require coordination with the California Department of Toxic Substances Control, RWQCB, United States Environmental Protection Agency (EPA), and Orange County Health Care Agency.

The Navy also maintains a network of pipes that extend from groundwater extraction wells north and east of the project site, converging on a pump house compound that is northwest of the project site. As identified on files from the Navy, none of this infrastructure is on the project site.

7. Level of Effort: Risks and Assumptions

Several risk items are present with regard to the proposed project.

- There is a potential that paleontological resources would be found at depths greater than five feet. It is anticipated that a paleontological monitor will be needed in areas where previously undisturbed sediments or bedrock are present or where the depth of excavation would exceed five feet. A project level Paleontological Memorandum will also be required. Based on the findings of the Paleontological Memorandum, a PMP may also be required. Any measures arising from the PMP would need to be incorporated into the proposed project commitments. If required then this could add additional time, both in preparation and agency review, to the project schedule along with additional costs.
- It is anticipated that additional testing related to hazardous materials will be required. If required, then this could add additional time, both in preparation and approval agency reviews, to the project schedule along with additional costs. It is anticipated that the California Department of Toxic Substances Control, RWQCB, United States Environmental Protection Agency, and Orange County Health Care Agency will need to be part of the approval process.
- Since the project site is located over the RWQCB's designated El Toro Marine Base Groundwater Plume Protection Boundary area, infiltration of the storm water runoff from the project site would not be considered a feasible storm water treatment method. Therefore, other BMPs would be required for the project site.

- The project will cross the 30-inch diameter high pressure gas line located along the east edge of the railroad right-of-way in two locations. Coordination with the owner of the utility (Southern California Gas Company) will be required to protect the pipe in place.
- The project will cross the 2-inch fiber optic line located along the east edge of the railroad right-of-way in two locations. Coordination with the owner of the utility (MCI Communications) will be required to protect the fiber optic line in place.

8. PEAR Technical Summaries

- 8.1 Land Use: OCTA owns the 21.3-acre property in the City of Irvine, which is located about a mile north of the existing Irvine Metrolink Station. The property is bound by the existing SCRRA right-of-way on the west and to the east is bound by County-owned land zoned for institutional use but for which alternative residential and commercial uses have been proposed by the County, which as noted above is the subject of current litigation.

The project site is located within Planning Area 51¹ of the City of Irvine General Plan (General Plan), adopted in May 2012, and designated for the Orange County Great Park (OCGP) land use under the General Plan. Corresponding zoning designations for this land use category include 1.1, Exclusive Agriculture; 1.4, Preservation, 6.1, Institutional; and 8.1, Trails and Transit Oriented Development.

The project site is specifically zoned 6.1, Institutional. The Institutional zone allows uses permitted by right and uses permitted with a conditional use permit.

Conditional Use Permit

It City of Irvine has indicated that a conditional use permit (CUP) would need to be obtained for this project and application thereof filed with the City. The use of the site as a rail maintenance facility, although deemed consistent with the purpose and intent of the zoning district, has characteristics that the City of Irvine has indicated would require review in order to avoid conflicts with surrounding land uses. According to the City of Irvine's requirements, the CUP application must include the following:

- Existing and proposed site plans;
- Floor plans;
- Site grading plans;
- Building elevations including color/materials;
- Landscape plans; and a
- Justification letter describing how the project would benefit the community.

The CUP review and approval process will take approximately six months to complete. This process will also be used by the City of Irvine to provide input on the appropriate CEQA compliance document for the CUP and the proposed project.

¹ The City of Irvine is divided into 38 distinct neighborhoods called "planning areas".
1350569.1

In addition to the CUP application, the Zoning Ordinance of the City of Irvine, California (ZOI) states that a Master Plan must be developed for any project in Planning Area 51. However, the City of Irvine is willing to waive the requirement for a Master Plan provided that the CUP application includes all information and addresses all issues associated with a Master Plan application².

Adjacent Land Use

As previously stated, the Final Program EIR was approved by the Orange County Board of Supervisors on November 14, 2017 for the 100-Acre Plan which borders the site to the north. Concurrently, the Irvine City Council unanimously voted to litigate against the County's Program EIR certification, asserting, among other causes of action, that the plan violates the 2003 Property Tax Transfer and Pre-Annexation Agreement, which set aside the 108 acres for Orange County to use for governmental and institutional purposes only.³ There are also two CEQA suits filed by others challenging the Program EIR. Until the litigation is resolved and the County's land use authority determined, it is not clear when or if the 100-Acre Plan will move forward.

The Bee Canyon Channel is on the southern property line and a NAVFAC (Naval Facilities Engineering Command) maintained ground water pumping structure and associated access road comprise the northern boundary elements. Wagner Engineering and Surveying performed property research largely based on information provided by OCTA and Metrolink and developed property lines on the aerial base map they also produced for this study.

It is anticipated the Land Use discussion will be integrated into the CEQA/NEPA analysis.

- 8.2 Growth: The proposed project is to accommodate both existing and planned future Metrolink operational needs for the southern region. Metrolink's service levels continue to increase with projections of significant increase along the corridor serving north San Diego County and Orange County that connects to Los Angeles Union Station and points north and east. The Central Maintenance Facility in Los Angeles is currently operating at capacity and cannot be easily expanded. The Eastern Maintenance Facility, while expandable, would require many nonrevenue miles to service trains and access is along an already congested corridor.

The proposed project would provide a maintenance facility to serve the planned increases in operating service levels and expanded fleet size needed to support those service levels for the southern region of the Metrolink service area. As such, the implementation of this project would allow more efficient facilities to accommodate the long-range projections for the region. It would not open new areas

² Division 2, Chapter 2-9, Section 2-9-2 of the ZOI.

³ It should be noted, Section 2.2.4 of the Property Tax Transfer and Pre-Annexation Agreement states: *"Irvine agrees that while the parcels of Base property that County is to receive will be annexed to Irvine, that notwithstanding said fact, Irvine will zone County's parcels and designate them in Irvine's General Plan, in accordance with County's direction. In addition, County shall retain exclusive land use control over said parcels, and shall be entitled to place any development upon said parcels that County shall determine to be desirable for County's needs, as though said property remained unincorporated, . . ."*

to development that would lead to growth beyond what has already been projected. The growth discussion will be integrated into the CEQA/NEPA analysis.

- 8.3 Farmlands/Timberlands: As previously discussed, the land use designation for the proposed project is institutional government use. The previous use for the project site was a military base. Although there had been farming activities on parts of the base, they were a means for the United States government to continue to maintain the land. The site is not designated as Important Farmland on the Farmland Mapping and Monitoring Program (FMMP) by the California Department of Conservation. Neither the proposed project site nor immediately adjacent lands are under a Williamson Act contract.

The project site is not located in or near a forest; the nearest forest to the site is the Cleveland National Forest, which is approximately eight miles away. Neither the site nor adjacent areas are zoned forest land, timberland, or timberland zoned for Timberland Production; the project would not result in the loss of forest land or conversion to non-forest use.

No further analysis is warranted related to farmlands or timberlands.

- 8.4 Community Impacts/Stakeholders: Depending on the disposition of the adjacent 100-Acre Plan and the implementation timeframe of the two phases of the project, potential community impacts as a result of this project would need to be addressed. It is important to note that the ultimate build out of the maintenance facility is contingent upon design and environmental permitting acceptance from the primary stakeholders, including SCRRA and OCTA. Additional stakeholders may include but are not limited to the City of Irvine, the County of Orange, Orange County Flood Control District, Kinder Morgan, Southern California Gas Company, MCI, Irvine Ranch Water District, Moulton Niguel Water District, and the Navy as external stakeholders. Given that the proposed OCMF will form an integral part of Metrolink's systemwide operations, the SCRRA's five-county member agencies are also important stakeholders and will be involved in the decision-making process. In addition to OCTA, the other members of SCRRA are the Los Angeles County Metropolitan Transportation Authority, Riverside County Transportation Commission, San Bernardino County Transportation Authority and Ventura County Transportation Commission.

The community impacts and stakeholders discussion are anticipated to be integrated into the CEQA/NEPA analysis.

Environmental Justice: A preliminary review of the 2010 Census data for the project area indicates that the Census Tract (524.04) that makes up the project study area where residential units are present generally has a lower percentage of individuals identified as White than in the County and in the City of Irvine. The Census Tract has a lower percentage of individuals identified as Hispanic/Latino than in the County (25.8 percent versus 34.2 percent) but a higher percentage than in Irvine (25.8 percent versus 9.4 percent). Other ethnicity distributions for Census Tract 524.04 compared to the County and City of Irvine can be found in Table 1.

Income level is the other primary criteria for evaluating the potential for environmental justice impacts. Low income is defined based on the Department of

Health and Human Services poverty guidelines. For 2016, this was \$24,300 for a family of four. The median household income the relevant Census Tract was approximately \$86,859 between 2012 and 2016. This is well above the established poverty threshold and is above Orange County median income (\$78,145), but slightly lower than the median income of Irvine (\$93,823) (see Table 2).

Based on the above information, the potential for disproportionate adverse effects on a minority or low-income population per Executive Order 12898 regarding environmental justice are unlikely. This conclusion, as well as impacts to Title VI populations, will be further evaluated in CEQA/NEPA analysis.

| Area | White | Hispanic/Latino | Black/African American | Asian | American Indian/Alaska Native | Native Hawaiian/other Pacifica Islander | Two or More Races |
|-----------------------------------|--------------|------------------------|-------------------------------|--------------|--------------------------------------|--|--------------------------|
| Orange County | 40.5% | 34.2% | 2.1% | 21.0% | 1.0% | 0.4% | 3.5% |
| Irvine | 42.4% | 9.4% | 0.1% | 41.2% | 0.1% | 0.2% | 4.9% |
| Irvine Census Tract 524.04 | 38.5% | 25.8% | 4.2% | 28.3% | 1.0% | 0.8% | |

<https://www.census.gov/quickfacts/fact/table/irvinecitycalifornia,orangecountycalifornia,ca/PST045217>

| Area | Median household income (in 2016 dollars), 2012-2016 | Percent of Persons in Poverty |
|-----------------------------------|---|--------------------------------------|
| Orange County | \$78,145 | 11.1% |
| Irvine | \$93,823 | 12.7% |
| Irvine Census Tract 524.04 | \$86,859 | 5.97% |

<https://www.census.gov/quickfacts/fact/table/irvinecitycalifornia,orangecountycalifornia,ca/PST045217>

8.5 Visual/Aesthetics: The visual and aesthetic impacts of the project are dependent, in part, upon the disposition of the litigation between the City of Irvine and the County on the 100-Acre Plan in relation to the implementation timeframe of the proposed project. It is recommended that a visual and aesthetics technical memorandum be prepared to address potential impacts related to the project. The visual and aesthetics discussion is anticipated to be integrated into the CEQA/NEPA analysis for the project.

8.6 Cultural Resources: Due to the anticipated ground disturbing activities, a records search is recommended to minimize potential impacts to cultural and historic resources. If it is determined from the records search that historical and/or archaeological resources are known to have occurred on the project site, then further analysis may be warranted. In compliance with Assembly Bill 52, Native American

tribes will be notified of the project. Measures will be employed during the construction phase to address Native American artifacts and encountering of human remains.

It is anticipated a technical memorandum would be prepared to address cultural resources for the project.

- 8.7 Hydrology and Floodplain: The topography of the site generally slopes from east to west. Given the orientation of the site being parallel to the railroad right-of-way (ROW) and approximately 45 degrees from a north-south orientation, the low point of the site is at the north end nearest the existing railroad ROW. There are existing Orange County Flood Control District (OCFCD) open flow drainage channels located north and south of the site, both of which run in a direction approximately perpendicular to the railroad ROW, flowing from east to west and crossing under the railroad tracks. The Bee Canyon Channel runs just past the south end of the site while the Marshburn Channel is located approximately 1,400-feet to the north of the site. The existing site currently drains towards the low point at the north end next to the railroad ROW at which point it is conveyed into the Marshburn Channel via an approximate 150-foot long concrete lined channel followed by an underground storm drainage line. It is anticipated that this general drainage pattern of storm water off the site will prevail after development of the OCMF. The drainage systems ultimately convey flow to the San Diego Creek, which is also owned and maintained by OCFCD. A detention basin to regulate storm water discharge into the County system, as well as storm filter devices to treat the water should be anticipated to meet RWQCB requirements. The storm water facilities will be sized to accommodate a 25-year, 24-hour storm event.

Based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRMs) (panel number 06059C0315J, dated December 3, 2009) the project area is located within Zone X which is defined as an area of minimal flooding.

The Hydrology and Floodplain discussion is anticipated to be integrated into the CEQA/NEPA analysis for the project.

- 8.8 Water Quality and Storm Water Runoff: The project site is located within Region 8 (Santa Ana) of the RWQCB jurisdiction. Region 8 encompasses approximately 2,800 square miles and occupies parts of Orange, San Diego, and Riverside Counties.

The Bee Canyon Channel is located adjacent to southeastern edge of the project site. The bottom portion of the channel, located beneath the SCRRA-owned railroad tracks, is concrete-lined and owned by the City of Irvine. The upper portion of the channel, northeast of the railroad tracks, is soft-bottom and owned by the OCFCD.

Analysis and coordination with the OCFCD may be required for the project.

The Bee Canyon Channel is located within the jurisdictional boundaries of the Santa Ana RWQCB. Construction of the proposed improvements would increase the amount of impervious surface thus increasing surface runoff during storm events. Given the urbanized nature of the study area, this additional increase is not anticipated to be substantial relative to the total amount of runoff from other

developed areas. In addition, this increase in impervious surface is not anticipated to have an effect on groundwater recharge or groundwater quality. However, this increase in impervious surface will have the potential to collect more roadway and other contaminants from the project operations that could ultimately impact surface water quality. In addition, grading activities associated with construction could result in temporary soil erosion. Implementation of Best Management Practices would minimize erosion of exposed soils and resultant sediment and surface contaminant loading into the storm drain system and downstream water bodies. Therefore, the proposed improvements are not expected to violate water quality or waste discharge standards.

The project would require a Storm Water Pollution Prevention Plan (SWPPP) since the disturbed soil area is more than one acre. Consideration of temporary and permanent BMPs to minimize water quality impacts should be integrated into the project design. Potential permanent water quality treatment BMPs may include bio-swales and or biostrips/filters. However, BMPs must be consistent with the use of the maintenance facility.

8.9 Geology, Soils, Seismic and Topography: The project area is located within the San Juan Capistrano Quadrangle and is considered in a seismically active region; however, it is not located in an Alquist-Priolo fault zone and no known faults intersect with the project area. According to the 2014 State of California Department of Conservation Fault Activity Map, the nearest known fault is the San Joaquin Hills Blind Thrust located in subsurface 0.6 miles south and southwest of the site. The Newport-Ingelwood Fault (located approximately 9.5 miles from the Project site) and the Elsinore Fault (located approximately 15 miles northeast of the Project site) are the closest active faults to the site with surface expression. No earthquake faults are identified on the project site. Therefore, the risk of the surface rupture of a known fault is considered low. Based on the State of California Seismic Hazard Zones, the project site is not mapped within the areas subject to liquefaction or earthquake induced landslides. The project site is underlain by denser soils with a deeper groundwater table, defined as SRA-2 Denser Soils/Deeper Ground water on the City of Irvine Seismic Response Areas, which would also make the site less susceptible to liquefaction and subsidence. However, a geotechnical investigation will be conducted during the environmental phase.

8.10 Paleontology: According to Figure E-2 of the City of Irvine General Plan, the project site is located within a "low" paleontological sensitivity zone. The project area is underlain by alluvium eroding from the Santa Ana Mountains. The late Pleistocene-early Holocene sediments are ubiquitous in the region, and they are not unique geologic features. However, surface grading and deeper excavations for under crossings, etc. could encounter paleontological resources.

A project level paleontological technical memorandum is anticipated for the project.

8.11 Hazardous Waste/Materials: As part of the site mitigation when MCAS El Toro was closed, a number of groundwater monitoring wells were installed throughout the larger 100-Acre Plan site. From records provided by the Navy, it appears only two are located within the proposed project site. One of the wells is located in the middle of the proposed storage yard (between storage tracks), so it may need to be relocated. The other well is located near the south entrance of the site and appears

out of conflict with any major proposed improvements. The site will be developed to provide for periodical access to the wells by the Navy.

Previous analysis related to hazardous materials have been prepared to address contamination on the project site. These include the 2012 ESA and 2011 FOST #6. It is recommended that an updated ESA technical memorandum be prepared to address the monitoring well as well as any project impacts to the water vaults.

8.12 Air Quality: The proposed project is a rail maintenance facility project located in the SCAQMD jurisdiction. Under the Federal Clean Air Act Transportation Conformity Rule, transportation projects located in areas designated “non-attainment” or “maintenance” with respect to National Ambient Air Quality Standards (NAAQS) must conform to the adopted State Implementation Plan (SIP). The proposed project is located in the Orange County portion of the South Coast Air Basin (SCAB), which includes all of Orange County, and the non-desert portions of Riverside, San Bernardino, and Los Angeles Counties. The proposed project is anticipated to require local, state, and federal funds. It is currently not included in the final adopted 2017 Federal Transportation Improvement Program (FTIP). Once it is confirmed that state and/or federal funds will be sought, Metrolink and OCTA will submit an application to request that the Southern California Associate of Governments (SCAG) add the project to the FTIP. The State of California has designated the Orange County portion of the South Coast Air Basin as being a nonattainment area for ozone (O₃), nitrogen dioxide (NO₂), particulate matter (PM_{2.5} and PM₁₀). The EPA has designated this area as being a nonattainment area for O₃ (8-hour standard), PM₁₀ and PM_{2.5} (see Table 3). In addition, the area is designated for maintenance for carbon monoxide (CO) and NO₂.

It is anticipated that an air quality technical memorandum be prepared to address potential impacts related to the project. Depending on the disposition of the 100-Acre project, impacts resulting from the project’s construction and operation may need to be analyzed. A key consideration would be the placement of the approved multi-family residential and hotel uses within the 100-Acre Plan in relationship to the OCMF if the County prevails in the current litigation.

| Table 3 | | |
|--|-------------------------------|-----------------------------|
| Attainment Status for South Coast Air Basin (Orange County) | | |
| Pollutants | Federal Classification | State Classification |
| O ₃ (1-hour standard) | — | Extreme Nonattainment |
| O ₃ (8-hour standard) | Nonattainment, Extreme | — |
| PM ₁₀ | Nonattainment, Serious | Nonattainment |
| PM _{2.5} | Nonattainment | Nonattainment |
| CO | Attainment/Maintenance | Attainment |
| NO ₂ | Attainment/Maintenance | Nonattainment |
| SO ₂ | Attainment | Attainment |

8.13 Noise and Vibration: The project site is currently surrounded by vacant lands that were formerly part of the MCAS, El Toro. There are two primary noise sources that affect the project area: traffic noise (i.e., from I-5, SR-133, and arterial roadways) and train noise. An additional project-related noise sources may include noise

generated by machinery that is anticipated to be part of the maintenance facility. Depending on the disposition of the 100-Acre Plan, residential and other noise-sensitive land uses located near the project may be exposed to higher noise levels as a result of the proposed project improvements. Noise sensitive receptors (multi-family and single-family residences) are anticipated to be located to the east of the project site. The County has been made aware of the proposed project and OCTA recommended that future residents be notified of plans for the project. The County adopted a mitigation measure that requires disclosure of the project to all prospective residents within 500 feet of the project site.

A noise analysis will need to be conducted for the project. The analysis will need to ensure that the operations of the maintenance facility will adhere to the City of Irvine's noise ordinance zoned for the project site (see Table 4).

Table 4
Irvine Interior and Exterior Noise Standards Energy Average (CNEL)

| LAND USE CATEGORIES | | ENERGY AVERAGE (CNEL) | |
|-----------------------------------|--|-------------------------------------|-------------------------|
| CATEGORIES | USES | INTERIOR ⁽¹⁾ | EXTERIOR ⁽²⁾ |
| RESIDENTIAL | Single-Family | 45 ⁽³⁾ 55 ⁽⁴⁾ | 65 ⁽⁷⁾ |
| | Multiple-Family | | |
| | Mobile Home | ----- | 65 ⁽⁵⁾ |
| COMMERCIAL/ INDUSTRIAL | Hotel, motel, transient lodging | 45 | 65 ⁽⁶⁾ |
| | Commercial, retail, bank, restaurant | 55 | ----- |
| | Office building, professional office, research & development | 50 | ----- |
| | Amphitheater, concert hall, auditorium, meeting hall | 45 | ----- |
| | Gymnasium (Multipurpose) | 50 | ----- |
| | Health clubs | 55 | ----- |
| | Manufacturing, warehousing, wholesale, utilities | 65 | ----- |
| | Movie theater | 45 | ----- |
| INSTITUTIONAL | Hospital, school classroom | 45 | 65 |
| | Church, library | 45 | ----- |
| OPEN SPACE | Parks | 65 | ----- |

<https://legacy.cityofirvine.org/civica/filebank/blobdload.asp?BlobID=20695>

Interpretation:

1. Interior environment excludes bathrooms, toilets, closets, and corridors.
2. Outdoor environment limited to private yard of single-family or multi-family residences private patio which is accessed by a means of exit from inside the unit; mobile home park; hospital patio; park picnic area; school playground; and hotel and motel recreation area.
3. Noise level requirement with closed windows. Mechanical ventilating system or other means of natural ventilation shall be provided pursuant to Appendix Chapter 12, Section 1208 of UBC.
4. Noise level requirement with open windows, if they are used to meet natural ventilation requirement.
5. Exterior noise level shall be such that interior noise level will not exceed 45 CNEL.
6. Except those areas affected by aircraft noise.
7. Multi-family developments with balconies that do not meet the 65 CNEL are required to provide occupancy disclosure notices to all future tenants regarding potential noise impacts.

8.14 Energy and Climate Change: As previously discussed the proposed project is a maintenance facility project designed to make the Metrolink service run more efficiently. Since a significant portion of the fleet will be in Orange County, a maintenance facility located along the Metrolink route through Orange County would be the optimal location as it would reduce operating costs by limiting non-revenue moves to the existing Metrolink storage and maintenance facilities in the cities of Los Angeles and San Bernardino. The proposed maintenance facility will provide equipment to inspect, clean, and maintain cars and locomotives on a regular and efficient basis. Much of the inspection and maintenance activity is federally mandated and must be performed at specific intervals. Any discussion related to energy would be incorporated in the environmental document.

The proposed project is intended to limit non-revenue trains from having to travel to the existing SCRRA storage and maintenance facilities located in Los Angeles or San Bernardino. It is anticipated the project would result in a reduction in unnecessary emissions from the trains. Accordingly, carbon dioxide (CO₂) and diesel particulate matter emissions are anticipated to be reduced as a result of the project. It is not expected that employee or fleet vehicles would generate a significant amount of pollution.

Although there are no current federal, state, or regional regulatory procedures or protocols for determining whether an individual project would create a considerable cumulative impact on greenhouse gas (GHG) emissions, impact analysis comparing the incremental contribution of this project and other projects to climate change would be addressed in the environmental document. The GHG analysis would include all direct and indirect sources of GHG. In the SCAQMD area, the standard protocol factors in emissions from construction, energy usage, mobile sources, solid waste, and water conveyance.

8.15 Utilities: Both wet and dry utilities would need to be brought from offsite to serve the OCMF. Service providers include the Southern California Gas Company, Irvine Ranch Water District (potable and recycled water and wastewater), and Southern California Edison. The offsite improvements are anticipated to be predominately conveyance facilities rather than expansion of major infrastructure. The project site is in an urbanized area and major wet and dry utilities are currently provided to serve adjacent land uses. If the utility demand for the OCMF precedes the development of the 100-Acre Plan, the utilities will be connected to infrastructure in the realigned Marine Way and extended westward along the proposed site access road to the north of the OCMF. If the 100-Acre Plan is developed before or in parallel with the OCMF, then it is expected that the developer of the 100-Acre Plan will be extending the aforementioned utilities within the right of way of the proposed "Promenade" street that fronts the eastern property line of the OCMF.

A 30-inch diameter Southern California Gas line runs longitudinally along the east edge of the railroad right-of-way. The extension of the tracks to and from the project site will necessitate a crossing of the line. Appropriate accommodations through the incorporation of design elements to protection of this line in place or relocation of a segment of the line will be required.

- 8.16 **Biological Environment:** The project area lies within a highly urbanized area and has been subject to multiple decades of continued disturbance with the military base use resulting in a barren landscape. The Navy previously conducted a biological resources survey and it did not reveal any sensitive resources in the project area.

Since the project site has been vacant for a number of years, a high level biological survey should be conducted to verify the presence or absence of sensitive biological resources and assess the drainages on site. Although not anticipated to occur, if state and/or federal listed species or habitat are found to be present, then a CDFW 2081 Incidental Take Permit or USFWS Section 7 Consultation may be required for potential impacts.

Furthermore, if the project requires removal of vegetation during the migratory bird nesting season (generally March 1-September 15), a preconstruction nesting bird survey would be required. If nesting migratory birds are found, project activity within an appropriate buffer (varying by species) may be required to halt until all nesting activities have ceased or all juveniles have fledged.

The results of the survey would be summarized in a biological memorandum and incorporated into the environmental document.

- 8.17 **Cumulative Impacts:** Depending on the implementation timeframe for the project, further analysis related to cumulative impacts will determine whether it could have cumulative impacts. Although it is not anticipated that a substantial or significant cumulative impact would occur, this will need to be evaluated in the environmental document that is prepared for the proposed project. Similar to other environmental factors, the disposition of the 100-Acre project would need to be considered when the environmental analysis is undertaken for this project.

- 8.18 **Context Sensitive Solutions:** working closely with the City of Irvine and its CUP process, SCRRA and OCTA will implement Context Sensitive Solutions (CSS) while planning, designing, constructing, maintaining, and operating this rail maintenance project. CSS uses innovative and inclusive approaches that integrate and balance community, aesthetic, historic, and environmental values with transportation safety, maintenance, and performance goals and is reached through a collaborative, interdisciplinary approach involving all stakeholders. As the project progresses through the environmental and design phases, the incorporation of CSS should be implemented through coordination amongst the stakeholders. Any public outreach should also include the topic of CSS so that the community can provide input with regard to how the project will fit into the community. The proposed project is a rail maintenance facility designed to improve efficiency for commuter rail service operations. New or modified retaining walls and soundwalls may be required and would be built to blend or match existing walls to preserve and enhance the aesthetics of the communities within the project areas. Project design should consider features such as light standards, or softscape treatments such as revegetation or other landscape treatments to reduce visual impacts and enhance the aesthetic quality of the various project components.

9. Disclaimer

This Preliminary Environmental Evaluation provides information to identify the appropriate state and federal environmental documents for the project. It is not an environmental determination or document. Preliminary analysis, determinations, and estimates of mitigation costs are based on the project description provided in the Project Study Report (PSR). The estimates and conclusions in the document are approximate and are based on cursory analyses of probable effects. A reevaluation of this document will be needed for changes in project scope or alternatives, or in environmental laws, regulations, or guidelines.

ATTACHMENT:

Attachment A: Preliminary Environmental Evaluation Studies Checklist

Attachment A:

Preliminary Environmental Evaluation Studies Checklist

| Environmental Studies for PA&ED Checklist | | | | |
|--|-------------------------------------|-------------------------------------|-------------------------------------|----------|
| | Not anticipated | Integrated Into Env. Doc. | Tech. Memo | Comments |
| Land Use | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Mineral Resources | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Wild and Scenic River Consistency | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Coastal Management Plan | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Growth | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Recreation | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Farmlands/Timberlands | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Community Impacts | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Community Character and Cohesion | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Relocations | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Environmental Justice | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Utilities/Emergency Services | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Visual/Aesthetics | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Traffic/Transportation | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Cultural Resources: | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Section 106 / PRC 5024 & 5024.5 | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Native American Coordination | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Finding of Effect | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Hydrology and Floodplain | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Water Quality and Stormwater Runoff | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Geology, Soils, Seismic and Topography | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Paleontology | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Hazardous Waste/Materials (ISA Phase II) | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Air Quality | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| Noise and Vibration | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Energy | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Climate Change | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Biological Environment | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Section 10 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| USFWS Consultation | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| NMFS Consultation | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Species of Concern (CNPS, USFS, BLM, S, F) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Wetlands & Other Waters/Delineation | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 404(b)(1) Alternatives Analysis | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Invasive Species | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| HMMP | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| CDFW Consistency Determination | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2081 | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Other: | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Cumulative Impacts | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

Environmental Studies for PA&ED Checklist

| | Not anticipated | Integrated Into Env. Doc. | Tech. Memo | Comments |
|--|-------------------------------------|-------------------------------------|--------------------------|----------|
| Mandatory Findings of Significance | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Context Sensitive Solutions | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Section 4(f) Evaluation | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Section 6(f) Evaluation | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Permits: | | | | |
| 401 Certification Coordination | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 404 Permit Coordination, IP, NWP, or LOP | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1602 Agreement Coordination | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

ATTACHMENT E RISK MATRIX

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**Orange County Maintenance Facility - Conceptual Design
Risk Register**

| Risk ID | Risk Description | Risk Type RDMC | Probability | Probability Rating (A) | Cost Impact | Cost Impact Rating (B) | Time Impact | Time Impact Rating (C) | Risk Rating | Mitigation Strategies | Percent Mitigated | Resp Org |
|---------|--|----------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|--|-------------------|----------|
| 1 | <p>Cause: Environmental clearance challenge from 100 Acre project developer/County of Orange. This project is already in the environmental approval process and its environmental document is silent on the SCRRA Project.</p> <p>Risk: If 100 Acre Project is approved prior to approval of the SCRRA Project, SCRRA/OCTA would have to defend putting a rail yard immediately adjacent to a sensitive receptor.</p> <p>Effect: Best case could delay the Project development for several years. Worst case, would show the proposed use to be incompatible with the site.</p> | R | Significant | 5 | Medium | 2 | High | 5 | 18 | Be as proactive as possible in establishing the property as railroad right of way | 0% | SCRRA |
| 2 | <p>Cause: Contaminated soils and ground water</p> <p>Risk: Site is known to be part of the larger Marine Corp Air Station, El Toro, which is a well documented contaminated area. The Project site has active ground water monitoring wells. No Phase 1 or Phase 2 environmental studies have been conducted on the site.</p> <p>Effect: Although the site shows no signs presently of any significant development the risk of contaminated soils must be considered which, depending upon volumes of materials and particular contaminants, some risk must be assumed.</p> | R | Medium | 2 | High | 3 | High | 3 | 6 | Conduct a Phase 1 and 2 environmental studies as soon as possible to determine extents of contaminated soils. Since the project appears to be largely one of import to meet grades engineer a capping design that does not disturb existing soils. | 0% | SCRRA |
| 3 | <p>Cause: Grading requirement of 0.2% for tracks where cars are stored (yards).</p> <p>Risk: Grading impacts are bigger than anticipated, requiring unknown impacts such as contaminated soils needing to be removed or existing utilities needing to be relocated. Mainline drops at about 0.85% over 2,000 feet creating a fill condition of 13 feet at the north end. Bee Canyon Bridge establishes a fixed elevation point at the south (high end).</p> <p>Effect: Increased costs due to soils imports and clearance at SR-133 overpass could be an issue.</p> | | Medium | 2 | High | 3 | Medium | 2 | 5 | Yard ladders in combination with some portions of the yard leads could be designed to have increased grades of up to 0.5% Apply for a design variance from SCRRA to increase the yard grade to 0.3% if necessary, which is the maximum practical grade for a storage yard and has been used on other systems. | 0% | STV |
| 4 | <p>Cause: On site DON ground water monitoring wells not identified, or not identified properly in data provided by DON.</p> <p>Risk: Additional wells may need to be relocated; DON access to wells for inspection required.</p> <p>Effect: Additional coordination with DON and its agents; cost of relocating and extending more wells than anticipated.</p> | R | Low | 1 | Low | 1 | Medium | 2 | 2 | | 0% | OCTA |
| 5 | <p>Cause: Unidentified Fiber Optic cable, gas line or other un-documented utilities located east of existing mainline, in SCRRA ROW.</p> <p>Risk: Lines will need to be relocated or protected in place.</p> <p>Effect: Additional coordination with the utility company; cost of relocating and sleeving utilities in place.</p> | R | Low | 1 | Medium | 2 | Very High | 4 | 3 | | 0% | SCRRA |
| 6 | <p>Cause: Support and Funding is required from SCRRA member agencies to advance project.</p> <p>Risk: Support and Funding is not sufficient to complete the project.</p> <p>Effect: Delay in advancing project development and/or construction schedule.</p> | D/C | Medium | 2 | Low | 1 | Significant | 5 | 6 | | | |
| 7 | <p>Cause: City of Irvine has review and approval authority, particularly for work within City street ROW (for proposed entrance road at north end of site).</p> <p>Risk: City could request additional improvements classified as betterments in order to grant approvals/permits.</p> <p>Effect: Adds primarily cost, if granted, and potentially additional time during design process to resolve scope. Could delay construction if not resolved during design.</p> | D/C | Medium | 2 | Medium | 2 | Medium | 2 | 4 | Get written confirmation from City, during design phase, regarding scope of improvements that the OCMF project will make related to the entrance road and intersection with Marine Way. | 0% | SCRRA |

**Orange County Maintenance Facility - Conceptual Design
Risk Register**

| Risk ID | Risk Description | Risk Type RDMC | Probability | Probability Rating (A) | Cost Impact | Cost Impact Rating (B) | Time Impact | Time Impact Rating (C) | Risk Rating | Mitigation Strategies | Percent Mitigated | Resp Org |
|---------|---|----------------|-------------|------------------------|-------------|------------------------|-------------|------------------------|-------------|---|-------------------|----------|
| 8 | Cause: County of Orange has review and approval authority for work performed within County street ROW (for proposed secondary entrance road at south end of site). Risk: County could request additional improvements classified as betterments in order to grant approvals/permits. Effect: Adds primarily cost, if granted, and potentially additional time during design process to resolve scope. Could delay construction if not resolved during design. | D/C | Medium | 2 | Medium | 2 | Medium | 2 | 4 | Get written confirmation from County, during design phase, regarding scope of improvements that the OCMF project will make related to the entrance road and intersection with Marine Way. | 0% | SCRRA |
| 9 | Cause: Construction of the bridge at Bee Canyon requires a permit from U.S. Army Corps of Engineers (USACE). Risk: USACE approval process takes longer than expected due to lack of resources. Effect: Delayed review/approval results in permit delay resulting in added costs due to resequencing and remobilization. | D/C | Medium | 2 | Low | 1 | High | 3 | 4 | Contact USACE during preliminary design phase; establish and initiate permitting process. Complete permit process during design phase. | 0% | SCRRA |
| 10 | Cause: Signing and Striping Plans and Traffic Signal Plans for intersection of entrance road with Marine Way need approval from City of Irvine. Risk: City permit takes a long time (more than 30 days). Effect: Delayed review/approval results in permit delay resulting in added costs due to resequencing and remobilization. | D/C | Medium | 2 | Low | 1 | Medium | 2 | 3 | Prepare a Traffic Management Plan during design process. Complete all traffic signal design during the design process in full coordination with the City of Irvine. | 0% | SCRRA |
| 11 | Cause: SCRRA introduces use of new types of rail vehicles, including potentially electrified equipment, in the yard, either late in design or during construction. Risk: The new rail vehicles or related infrastructure (such as OCS poles and traction power substation) result in non-compatibility issues that cannot readily be mitigated (due to size/space constraints). Effect: Additional cost to make major infrastructure modifications to accommodate the new equipment. | D/C | Low | 1 | High | 4 | Medium | 3 | 4 | Establish realistic criteria based on existing rail vehicles and any potential equipment being considered by SCRRA. | 0% | SCRRA |

- 1 (R) Requirements
- 2 (D) Design
- 3 (M) Market
- 4 (C) Construction

Table 3 - Risk Scoring Matrix

| | Low (1) | Med (2) | High (3) | Very High (4) | Significant (5) | Legend |
|-----------------|------------|------------------|------------------|-------------------|-----------------|--------|
| Probability | < 10% | <= 10-50% | > 50% | <= 75% & 90% | >90% | < - 3 |
| Cost Impact | < \$250K | <= \$250K - \$1M | <= \$1M and \$3M | <= \$3M and \$10M | >\$10M | 4 - 9 |
| Schedule Impact | < 1 Months | <= 1 - 3 Months | <= 3-6 Months | <= 6 - 12 Months | > 12 Months | > = 10 |

ATTACHMENT F
UTILITIES MATRIX

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UTILITIES MATRIX

Project Name: Orange County Maintenance Facility
 Last Updated: 9/27/2018

| ITEM | UTILITY DESCRIPTION | UTILITY OWNER Utility Company Contact Name Address Phone | AGREEMENT NO. | LOCATION (Project Station or MilePost Limits) | DATA SOURCE (e.g. As-Builts, Field Survey, Potholing) | POTENTIAL CONFLICT | DISPOSITION | | | ESTIMATED COST | | | STATUS Next steps; Outstanding issues |
|------|--|--|------------------|---|---|--|-------------|----------|------------------|----------------|-----------------|---------------|---|
| | | | | | | | PIP | RELOCATE | ENCASE | BY | LENGTH (FT.) | UNIT PRICE | |
| 1 | 15" sanitary sewer line | Irvine Ranch Water District (IRWD) Development Services 15600 Sand Canyon Ave, Irvine, CA 92619-7000 949-453-5300 engineeringinfo@irwd.com | | Crosses tracks at the west end of the yard. | As-Builts | Lead 1 track will go over top of the line. | | X | SCRRA Contractor | 50 | \$ 50 | \$ 2,500 | Complete plans and propose them to IRWD. |
| 2 | 30" high pressure gas line with 10' easement | So Cal Gas Transmission Larry Ramirez 9400 Oakdale Ave, Chatsworth, CA 91311 818-701-4546 socialgastransmissionutilityrequest@semprautilities.com | | Running along railroad right of way just south of the proposed maintenance facility perimeter road. | As-Builts | Conflicts with the track yard leads and proposed bridge. | | X | SCRRA Contractor | 360 | \$ 1,750 | \$ 630,000 | Complete plans for a protective slab and propose them to So Cal Gas. |
| 3 | 6" Reclaimed water line/ valves (abandoned) | Unknown | | South corner of yard to the middle of the yard | As-Builts | Crosses multiple proposed tracks. | | | SCRRA Contractor | 1,000 | \$ 5 | \$ 5,000 | Demolish utility. |
| 4 | Concrete water vault/ lines/ associated features (abandoned) | U.S. Navy Department Guy Chammas guy.chammas@navy.mil | | Along north west edge of yard | As-Builts | May conflict with proposed utilities | X | | SCRRA Contractor | | | \$ - | Complete plans with utility left in place any conflict may call for demolition. |
| 5 | Monitoring well and easement | Orange County Water District (OCWD) Chris Olsen PO Box 8300, Fountain Valley, CA 92728-8300 714-378-3200 colsen@ocwd.com | | South corner of yard | As-Builts | Proposed track to go through easement. | | X | SCRRA Contractor | | | \$ - | Propose plans for a relocated easement to OCWD. |
| 6 | Existing fiber optic buried cable | Verizon (MCI) Dean Boyers 400 International Pkwy, Richardson, TX 75081 469-886-4238 dean.boyers@verizon.com | | Within railroad right of way. | As-Builts | | X | | SCRRA Contractor | | | \$ - | Ensure lines will not be damaged during construction. |

UTILITIES RECORD OF SEARCH MATRIX



Project Name: Orange County Maintenance Facility
 Last Updated: 9/27/2018

| ITEM | AGENCY | CONTACT | ADDRESS | PHONE NUMBER | EMAIL | STATUS Received Mapping Info (Yes/Waiting/No Utilities) | Contacted (Yes/Waiting/No) |
|------|--|--|---|--------------------|--|---|-------------------------------|
| 1 | 6" Reclaimed water line/ valves (abandoned) | Unknown | Call for Mailing Address | 510-645-2929 | | Waiting, anticipate response by August. | Yes |
| 2 | Concrete water vault/ lines/ associated features (abandoned) | Thomas Eldred | 29947 Avenida De Las Banderas, Rancho Santa Margarita, CA 92688 | 949-546-2754 | | Waiting, anticipate response by August. | Yes |
| 3 | Irv TS | Permit Office | 6427 Oak Canyon #3, Irvine, CA 92618-5202 | 949-734-6313 | info@ci.irvine.ca.us | Waiting, anticipate response by August. | Yes |
| 4 | Irvine Ranch Water District (IRWD) | Verizon (MCI) Dean Boyers 400 International Pkwy, Richardson, TX 75081 469-886-4238 dean.boyers@verizon.com | 15600 Sand Canyon Ave, Irvine, CA 92619-7000 | 949-453-5300 | engineeringinfo@irwd.com | Yes | Yes |
| 5 | MCI So Cal | | 400 International Pkwy, Richardson, TX 75081 | 469-886-4238 | dean.boyers@verizon.com | Yes | Yes |
| 6 | MPWR LA | | 2698 White Rd, Irvine, CA 92614 | 949-864-0296 | mdenning@telepacific.com | No Utilities | Yes |
| 7 | Southern California Edison | Kim Gurule | PO Box 11982, Santa Ana, CA 92711 | 714-973-5701 | maprequests@sce.com | Waiting, anticipate response by August. | Yes |
| 8 | So Cal Gas Distribution | Ryan Lopez | 1919 State College Blvd, Anaheim, CA 92806-6114 | 714-634-5067 | AtlasRequests/WillServeAnaheim@semprautilities.com | Waiting, anticipate response by August. | Yes |
| 9 | So Cal Gas Transmission | Larry Ramirez | 9400 Oakdale Ave, Chatsworth, CA 91311 | 818-701-4546 | socalgastransmissionutilityrequest@semprautilities.com | Yes | Yes |
| 10 | Transportation Corridor Agencies (TCAFO) | Sam Rad | 125 Pacifica Suite 100, Irvine, CA 92618-3304 | 949-754-3481 | srad@thetollroads.com | No Utilities | Yes |
| 11 | Terra Dex | Rin Tran | 855 El Camino Real Suite 309, Palo Alto, CA 94301 | 650-227-3254 | rin@terradex.com | No Utilities | Yes |
| 12 | Orange County Water District (OCWD) | Chris Olsen | PO Box 8300, Fountain Valley, CA 92728-8300 | 714-378-3200 | colsen@ocwd.com | Yes | Yes |
| 13 | UQSTSO | Info Not Available | Info Not Available | Info Not Available | Info Not Available | Info Not Available | No |
| 14 | U.S. Army Corps of Engineers (USACE) 04 | Gilbert Aceves | 14005 S Benson Ave, Chino, CA 91710 | 909-329-9445 | maprequests@sce.com | Waiting, anticipate response by August. | Yes |
| 15 | U.S. Army Corps of Engineers (USACE) TT84SE | Gilbert Aceves | 14005 S Benson Ave, Chino, CA 91710 | 909-329-9445 | maprequests@sce.com | Waiting, anticipate response by August. | Yes |
| 16 | U.S. Navy Department | Debby Platt | 1 Civic Center Plaza, Irvine, CA 92606 | 949-724-7423 | dplatt@cityofirvine.org | Yes | Yes |
| 17 | Moulton Niguel Water District | Engineering Department | 27500 La Paz Rd, Laguna Niguel, CA 92677 | 949-831-2500 | Jcyprian@mnwd.com | No Utilities | Yes |

ATTACHMENT G
PERMIT MATRIX

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PERMIT MATRIX



Project Name: Orange County Maintenance Facility
 Last Updated: 7/20/2018

| ITEM | DESCRIPTION | PERMITTING AGENCY Agency Name Contact Name Address Phone | PERMIT PROCESS | | DATA REQUIRED Technical requirements or back-up to accompany permit application | PERMIT FEE | | COMMENTS Basis of permit fee determination | STATUS Next steps; Outstanding issues |
|------|--|--|----------------|------------------------|--|------------|----------------|--|---|
| | | | LEAD TIME | DURATION OR EXPIRATION | | BY SCRRRA | BY CON-TRACTOR | | |
| 1 | Building Permit, City of Irvine | City of Irvine Community Development 1 Civic Center Plaza Irvine, CA 92606 949-724-6313 | | | Building Data Sheets describing each building in detail, Orange County Fire Authority Screening Form, School Fee Determination Form, and Recycling and Diversion of Construction and Demolition Waste form | | \$135 | \$135/hour | Complete application and submit documents |
| 2 | Planning Approval - Conditional Use Permit, City of Irvine | City of Irvine Community Development 1 Civic Center Plaza Irvine, CA 92606 949-724-6313 | | | Drawings, Environmental Clearance (CEQA) | | \$128 | 2 | Complete application and submit documents |
| 3 | Grading Permit, City of Irvine | City of Irvine Community Development 1 Civic Center Plaza Irvine, CA 92606 949-724-6313 | | | Drawings, calculations, and specifications | | \$575 | \$575/acre | Grading plans shall be prepared in accordance with the Grading Manual (Article 5). All grading and improvement projects, whether public or private, shall be designed in accordance with the City of Irvine Design Manual and Standard Plans (Public Works Department, Development Engineering Division), Grading Code, Grading Manual, Zoning Ordinance (link is external); the California Building Code, and the Standard Specification for Public Works Construction (Green Book), all latest editions |
| 4 | Excavation / Shoring Permits, City of Irvine | City of Irvine Department of Public Works 1 Civic Center Plaza Irvine, CA 92606 949-724-7365 | | | Plans, location map. | | | | Complete application and submit documents |
| 5 | Temporary and Permanent Street Lighting, City of Irvine | City of Irvine Department of Public Works 1 Civic Center Plaza Irvine, CA 92606 949-724-7365 | | | Plans, location map. | | | | Complete application and submit documents |
| 6 | Traffic Control Plans Permit, City of Irvine | City of Irvine Department of Public Works 1 Civic Center Plaza Irvine, CA 92606 949-724-7365 | | | Plans, location map. | | \$217 | Includes \$90 Plan Check Fee and \$217 Inspection fee. | Complete application and submit documents |
| 7 | Haul Route Permits | City of Irvine Department of Public Works 1 Civic Center Plaza Irvine, CA 92606 949-724-7365 | | | Plans, location map. | | | | Complete application and submit documents |

PERMIT MATRIX



Project Name: Orange County Maintenance Facility
 Last Updated: 7/20/2018

| ITEM | DESCRIPTION | PERMITTING AGENCY Agency Name Contact Name Address Phone | PERMIT PROCESS | | DATA REQUIRED Technical requirements or back-up to accompany permit application | PERMIT FEE | | COMMENTS Basis of permit fee determination | STATUS Next steps; Outstanding issues |
|------|--|---|----------------|------------------------|---|------------|----------------|---|---|
| | | | LEAD TIME | DURATION OR EXPIRATION | | BY SCRRA | BY CON-TRACTOR | | |
| 8 | Street Closures Permit | City of Irvine Department of Public Works 1 Civic Center Plaza Irvine, CA 92606 949-724-7365 | | | Plans, location map. | | \$307 | Includes \$90 Plan Check Fee and \$217 Inspection fee. | Complete application and submit documents |
| 9 | Building Permit, Orange County Public Works | Orange County Public Works 300 N. Flower Street Santa Ana, CA 92703-5000 714-667-8888 | | | Drawings, calculations, and specifications | | | | Complete application and submit documents |
| 10 | Grading Permit, Orange County Public Works | Orange County Public Works 300 N. Flower Street Santa Ana, CA 92703-5000 714-667-8889 | | | Drawings, calculations, and specifications | | | | Complete application and submit documents |
| 11 | Right of Entry Agreement, SCRRA | Southern California Regional Rail Authority (SCRRA) 2558 Supply Street Pomona, CA 91767 909-392-8463 | | | Safety training complete and Drawings | | \$3,000 | Includes \$1,500 for SCRRA Standard Plan Review fee. \$1,000 Administration fee. \$500 SCRRA Third Party Safety Training fee. | Complete application and submit documents |
| 12 | Section 404 Permit, U.S. Environmental Protection Agency | U.S. Army Corps of Engineers Los Angeles District 915 Wilshire Boulevard Los Angeles, CA 90017 | | | Water loss mitigation plans, SWPPP, drawings, and calculations for bridge over Bee Canyon Channel | | | | Complete application and submit documents |
| 13 | Section 408 Permit, U.S. Army Corps of Engineers | U.S. Army Corps of Engineers Los Angeles District 915 Wilshire Boulevard Los Angeles, CA 90017 | | | Water loss mitigation plans, SWPPP, drawings, and calculations | | | | Complete application and submit documents |
| 14 | Orange County Fire Authority Approval | 1 Fire Authority Road Irvine, CA 92602 714-573-6000 | | | Drawings, calculations, and specifications | | \$417 | | Complete application and submit documents |
| 15 | Federal Transit Administration | FTA - Region 9 San Francisco Federal Building 90, 7th Street Suite 15-300 San Francisco CA 94103 415-734-9489 | | | NEPA Documents | | | | |
| 16 | Power Service - Southern California Edison | P.O. Box 11982, Santa Ana, CA 92711 | | | | | | | Complete application and submit documents |
| 17 | Gas Service - Southern California Gas | 1919 State College Blvd, Anaheim, CA 92806-6114 | | | | | | | Complete application and submit documents |
| 18 | Water Service - Irvine Ranch Water District | | | | | | | | |

PERMIT MATRIX



Project Name: Orange County Maintenance Facility
 Last Updated: 7/20/2018

| ITEM | DESCRIPTION | PERMITTING AGENCY Agency Name Contact Name Address Phone | PERMIT PROCESS | | DATA REQUIRED Technical requirements or back-up to accompany permit application | PERMIT FEE | | COMMENTS Basis of permit fee determination | STATUS Next steps; Outstanding issues |
|------|---|--|----------------|------------------------|---|------------|---------------|---|---|
| | | | LEAD TIME | DURATION OR EXPIRATION | | BY SCRRRA | BY CONTRACTOR | | |
| 19 | Caltrans Encroachment Permit | California Department of Transportation (Caltrans) District 12 1750 East 4th Street, Suite 100 Santa Ana CA 92705 | | | Plans, location map, environmental documentation, letter of authorization, surety bonds, liability insurance, any applicable fees, etc. | | | | Complete application and submit documents |
| 21 | General Order-88B (Alterations of railroad crossings) | California Public Utilities Commission (CPUC) 320 West 4th Street, Ste. 500 Los Angeles, CA 90013 | | | Vicinity Map - Map of Immediate Vicinity on a scale of 50 to 200 ft/inch. Grade Lines - Plans showing the profile of the existing and proposed grade lines of the track and roadway | \$0 | \$0 | | Complete application and submit documents |

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ATTACHMENT H
PURCHASE AND SALE AGREEMENT REQUIREMENT MATRIX

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METROLINK



PURCHASE AND SALE AGREEMENT REQUIREMENT MATRIX

Project Name: Orange County Maintenance Facility

Last Updated: 7/22/2018

| ITEM | DESCRIPTION | Purchase and Sale Agreement Reference | AGENCY Agency Name Address Phone | REQUIREMENTS | COMPLIANCE | | COMMENTS | STATUS Next steps; Outstanding issues |
|------|--|---|---|--|------------|--------------|----------|---|
| | | | | | X | Stipulations | | |
| 1 | No conveyance without approval of City | Purchase and Sale Agreement 5. Use of the Property | City of Irvine | OCTA shall not convey, mortgage, lease hypothecate or otherwise transfer all or any portion of its ownership interest in the Property without the approval of the City. | X | | | |
| 2 | Provision of access | Purchase and Sale Agreement 6. Access License | City of Irvine | OCTA shall provide vehicular, pedestrian, and bicycle access over those portions of the existing Perimeter Road that traverse across the Property, until the construction of Marine Way to the east. | X | | | Construction of Marine Way is complete, therefore, this requirement has lapsed. |
| 3 | Environmental remediation by DON | Purchase and Sale Agreement 12.2 Environmental Conditions, 12.2.1 | Department of Navy (DON) | DON has a responsibility to conduct environmental remediation activities on various portions of the site, and OCTA acknowledges that in the event of a conflict, such activities by DON take precedence over any use, operations, or activities to be conducted on the site by OCTA (or Metrolink). | | | | |
| 4 | Right of entry to perform remediation | Purchase and Sale Agreement 12.2 Environmental Conditions, 12.2.2 | Department of Navy (DON) US Environmental Protection Agency (EPA) State of California | DON, the US Environmental Protection Agency (EPA), and the State of California and their respective officers, agents, employees, contractors and subcontractors have a right to enter upon the Property for purposes related to the DON remediation work, as appropriate with any applicable environmental law. | | | | |
| 5 | LIFO restrictions | Purchase and Sale Agreement 12.2 Environmental Conditions, 12.2.3 | LIFO | Lease in Furtherance of Conveyance between the United States of America and Heritage Fields, LLC, a Delaware Limited Liability Company for MCAS El Toro Parcel 3, dated July 12, 2005 (the "LIFO"), may contain restrictions on the use of the Property. OCTA shall comply with all provisions of the LIFO. | | | | |
| 6 | Site development to comply with LIFO requirements | Purchase and Sale Agreement 12.2 Environmental Conditions, 12.2.4 | LIFO | OCTA shall conduct, and require all of its contractors, subcontractors, consultants, agents and representatives to conduct, all development, use and operations and activities on the site, in accordance with the requirements of the LIFO. | | | | |
| 7 | Provision of access near C Street. | Purchase and Sale Agreement 15. Future Transaction | City of Irvine | It is City's intent to provide access to the Property near or around the planned "C" Street and Marine Way for use of the Property as a commuter rail maintenance facility. OCTA responsible for fair share of roadway capacity improvements. | | | | |
| 8 | Right for easement within ten (10) feet of property line | Grant Deed, Page 1 | City of Irvine | Grantor (City of Irvine) reserves the right to grant, transfer or license non-exclusive easements over, under or across the Property within ten (10) feet from all property lines bordering on and parallel to any public street for the construction, installation, maintenance or replacement of various utilities, but without unreasonably interfering with Grantee's (OCTA's) reasonable use of the site. | | | | |
| 9 | OCTA bound by CRUP | Grant Deed, Page 3 | City of Irvine | Grantee (OCTA) shall be bound by the terms and conditions of the Covenant to Restrict Use of Property - Environmental Restriction between the United States and the California Environmental Protection Agency, Department of Toxic Substances Control, recorded on May 27, 2011 as Instrument No. 2011000265425 in the Official Records of Orange County, CA (the "CRUP"). | | | | |
| 10 | Non-interference with DON remedial activities | Quitclaim Deed and Environmental Restriction | DON | OCTA may not use the property for construction of any improvements for any purpose that interferes with DON remedial correction activities including investigation, drilling, boring, coring, test-pitting, pumping wells or other treatment facilities. | | | | |
| 11 | OCTA to provide written request to DON | Quitclaim Deed and Environmental Restriction | DON | Prior to use of the property, OCTA shall submit a written request to DON describing the intended use and Don shall respond in writing. | | | | |
| 12 | OCTA to provide Land Use Control Compliance Certificate | Quitclaim Deed and Environmental Restriction | DON | OCTA will need to provide DON and FFA signatories an annual Land Use Control Compliance Certificate. An annual inspection will be made and any deficiencies will need to be corrected. This may be re-evaluated every 5 years. | | | | |
| 13 | | | | | | | | |
| 14 | | | | | | | | |
| 15 | | | | | | | | |

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ATTACHMENT I
OTHER SUPPORTING DOCUMENTS

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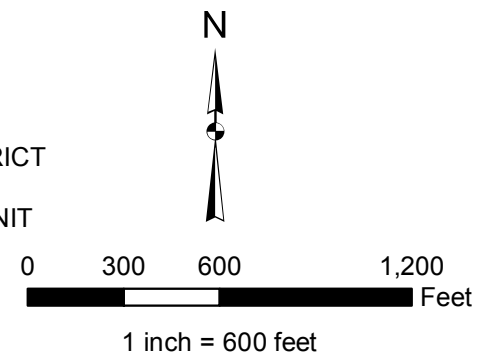
C:\Users\jrossard\Documents\ArcGIS\Projects\24SGU Groundwater Extraction System_68C0B008-6970-4D9C-AE24-B5951D50F6E9\10603 SGU Groundwater Extraction System.mxd



LEGEND

- Clustered Single-Completion Monitoring Well
- Westbay Multiport Well
- Nested Monitoring Wells
- Single-Completion Monitoring Well
- SGU Extraction Well
- Groundwater Conveyance Line
- South Irvine Brine Line
- Former MCAS El Toro Boundary

DON - DEPARTMENT OF THE NAVY
 IRWD - IRVINE RANCH WATER DISTRICT
 SGU - SHALLOW GROUNDWATER UNIT



| | |
|--|---|
| SHALLOW GROUNDWATER UNIT GROUNDWATER EXTRACTION SYSTEM | |
| FORMER MARINE CORPS AIR STATION EL TORO OU 1A AND 2 IRVINE, CALIFORNIA | |
| | CONTRACT: N62473-14-C-4202 TASK ORDER: 0000 DATE: JANUARY 2018 DCN: NRS-4202-0000-0017 |
| FIGURE 3 | |

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CURRENT SHOP SPOTS REQUIRED

| Maintenance Activity | | Diesel Locomotives | | | | Cab Cars (Coach) | | | | Trailers (Coach) | | | | Total Spots | |
|----------------------|------------------------|--------------------|----------------------|---------------------|-----------|------------------|----------------------|---------------------|-----------|------------------|----------------------|---------------------|-----------|-------------|------|
| | | Visits/yr. (A) | Shift-spot/visit (B) | Shift-spots/yr. (C) | Spots (D) | Visits/yr. (A) | Shift-spot/visit (B) | Shift-spots/yr. (C) | Spots (D) | Visits/yr. (A) | Shift-spot/visit (B) | Shift-spots/yr. (C) | Spots (D) | | |
| Inspection: | | | | C=A+B | D=(C×E)/F | | | C=A+B | D=(C×E)/F | | | C=A+B | D=(C×E)/F | | |
| | 92 day* | 2.0 | 2.0 | 4.0 | 0.7 | | | | | | | | | | |
| | 6 month | 1.0 | 2.0 | 2.0 | 0.3 | 1.8 | 4.0 | 7.0 | 1.1 | 1.8 | 4.0 | 7.0 | 5.2 | | |
| | Annual | 0.7 | 3.0 | 2.0 | 0.3 | | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | | |
| | Biennial/ Triennial | 0.33 | 5.0 | 1.7 | 0.3 | | | 0.0 | 0.0 | | 0.0 | 0.0 | 0.0 | | |
| | 4-yr Sub-total | | | | 1.6 | 0.25 | 2.0 | 0.5 | 0.1 | 0.25 | 2.0 | 0.5 | 0.4 | 6.8 | |
| | Sub-total | | | | 1.6 | | | | 1.2 | | | | 5.6 | | |
| Unscheduled Repairs | | 6.0 | 3.0 | 18.0 | 3.0 | 4.0 | 3.0 | 12.0 | 2.0 | 2.0 | 3.0 | 6.0 | 4.5 | | |
| Modifications | | | | 0.0 | 0.0 | 0.5 | 3.0 | 1.5 | 0.2 | 0.5 | 3.0 | 1.5 | 1.1 | | |
| Overhaul | | 0.0 | 30.0 | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | 0.0 | | |
| Accident ** | | | | 0.0 | 0.0 | | | 0.0 | 0.5 | | | 0.0 | 0.5 | | |
| | Sub-total | | | | 3.0 | | | | 2.7 | | | | 6.1 | 8.8 | |
| | | Locomotive Total: | | | | 4.5 | | | | | Coach Total: | | | | 15.6 |
| Wheel Truing | | 4.6 | 0.3 | 1.2 | 0.2 | 2.6 | 0.3 | 0.7 | 0.1 | 2.6 | 0.3 | 0.7 | 0.5 | 0.8 | |
| Wheelset Change | | 1.5 | 0.5 | 0.8 | 0.1 | 0.9 | 0.3 | 0.2 | 0.0 | 0.9 | 0.3 | 0.2 | 0.2 | 0.3 | |
| Paint | | | | 0.0 | 0.0 | | | 0.0 | 0.0 | | | 0.0 | 0.0 | 0.0 | |

| Fleet Size (E) | |
|----------------------|-----|
| # Diesel Locomotives | 41 |
| # Cab Cars | 41 |
| # Trailers | 186 |

| Shifts/yr/spot (F) | | |
|-----------------------|---------|-----|
| Locomotive Inspection | | 250 |
| | Repairs | 250 |
| Coach Inspection | | 250 |
| | Repairs | 250 |
| Wheelset Change | | 250 |
| Wheel truing | | 250 |

| SUMMARY | | | |
|--------------|-----------------|------|------------|
| | # - Spots Req'd | Shop | Preventive |
| Locomotives | 4.5 *** | | |
| Coaches | 15.6 *** | 5.0 | 10.6 |
| Wheel Truing | 0.8 | | |
| Drop Table | 0.3 | | |
| Paint | 0.0 | | |
| Total: | 21.3 | | |

* Note: 92-day inspection for each cab can be performed during S&I.

** Note: Accident repair assumed to occupy 0.5 coach and 0.5 cab spots per year.

*** These spots-required numbers (rounded up to 5 and 16, respectively) are carried forward into the CMF Needs and Capacity Table in the OCMF PSR.

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Ruggles, Sean R.

From: Belisario Rios <Rios@irwd.com>
Sent: Tuesday, July 03, 2018 9:39 AM
To: Ruggles, Sean R.
Cc: Adrian Hernandez-Lopez
Subject: Re: OCTA Metrolink Project - Marine Way
Attachments: Overall OCTA.JPG

Hi Sean,

We have included all of our as-builts in this area on the CD Adrian has prepared. Regarding the recycled pipelines that you and I were discussing on your site, you can see that we have no public lines in that specific area and would not know if anything is live or not for a private line (or if this line belongs to the Navy for example). Please give me a call if you have any other questions.

Thanks,

Belisario Rios, P.E.
Engineer, Development Services



15600 Sand Canyon Avenue, Irvine, California 92618
Mailing: PO Box 57000, Irvine, California 92619-7000
(949) 453-5394 office
rios@irwd.com

>>> Adrian Hernandez-Lopez 7/3/2018 8:20 AM >>>
Dear Mr. Ruggles,

Staff in the Development Services Department has determined that there are IRWD facilities within the limits of proposed work and therefore the project does require IRWD review and approval. Record Drawings and/or atlas sheets that pertain to the project location have been burned onto a CD, which is available for pick up at the counter in the Engineering Department, 15600 Sand Canyon Avenue, Irvine CA, 92618. Our office hours are from Monday through Thursday 8:00 am – 4:30 pm and alternating Fridays from 8:00 am-4:00 pm. The office is closed Friday, July 13, 2018, and every alternating Friday thereafter. Details related to the plan check process can be found in the IRWD Procedural Guidelines at www.irwd.com.

If you have any questions, please call Belisario at (949) 453-5394.

Adrian Hernandez Lopez
Engineering Intern



15600 Sand Canyon Ave
Irvine, CA 92618

Ruggles, Sean R.

From: Smits, Marc P CIV NAVFAC HQ, BRAC PMO <marc.smits@navy.mil>
Sent: Wednesday, July 25, 2018 9:47 AM
To: Chammas, Guy A CIV
Cc: Ruggles, Sean R.; Derek McGregor (dmcgregor@dmceng.com); Jim Werkmeister (jim.werkmeister@fivepoint.com)
Subject: RE: IRP Site 24 Base Maps

Guy,

The vault was there when we installed the system and to my knowledge is not part of our remediation system. The main water line to the base entered the base in that general location. Again, this would be a good question for the city to address as to whether it can be removed.

Thanks,

Marc

-----Original Message-----

From: Chammas, Guy A CIV
Sent: Tuesday, July 24, 2018 5:31 PM
To: Ruggles, Sean R. <Sean.Ruggles@stvinc.com>
Cc: Smits, Marc P CIV NAVFAC HQ, BRAC PMO <marc.smits@navy.mil>; Derek McGregor <dmcgregor@dmceng.com>; 'Jim Werkmeister' <jim.werkmeister@fivepoint.com>
Subject: RE: IRP Site 24 Base Maps

Hi Sean,

I've pulled a few colleagues into the loop to hopefully get your questions answered. As far as the vault (Note 3), I believe the Navy still uses it (it may be part of our remediation system), but Marc would be able to provide more detail. As far as the reclaimed water line (Note 5), I do not believe this was ever a Navy asset and you may need to contact the City of Irvine or some other entity that holds a presumed easement over the line. Derek or Jim may be able to provide more information.

-----Original Message-----

From: Ruggles, Sean R. <Sean.Ruggles@stvinc.com>
Sent: Tuesday, July 24, 2018 4:27 PM
To: Chammas, Guy A CIV <guy.chammas@navy.mil>
Cc: Sokol, Andrew W. <ANDREW.SOKOL@stvinc.com>; Molina, Joselyn N. <Joselyn.Molina@stvinc.com>
Subject: [Non-DoD Source] RE: IRP Site 24 Base Maps

Guy

I was hoping you might be able to help me with a few questions I had about the OCTA Metrolink Maintenance Facility Project. We were wondering if the water utility underground vault and the reclaimed water line on the attached plan (called out as note 3 and 5) can be removed or if they are still in use by the Navy. The reclaimed water line does not show up on any plans we received from the Navy or otherwise. The vault we cannot say for sure what it is connecting to off the site.

Thank you

Sean Ruggles

• STV Incorporated • 1055 West Seventh Street Suite 3150 • Los Angeles, CA 90017
Phone: 213-673-1918 • Email: Sean.Ruggles@STVInc.com

-----Original Message-----

From: Chammas, Guy A CIV [mailto:guy.chammas@navy.mil]

Sent: Wednesday, June 13, 2018 10:59 AM

To: Ruggles, Sean R. <Sean.Ruggles@stvinc.com>

Cc: Sokol, Andrew W. <ANDREW.SOKOL@stvinc.com>; Peterson, Mark A. <Mark.Peterson@stvinc.com>;

'Debby Platt' <DPlatt@cityofirvine.org>; 'Jim Werkmeister' <jim.werkmeister@fivepoint.com>; 'Derek

McGregor' <dmcgregor@dmceng.com>

Subject: RE: IRP Site 24 Base Maps

Sean, points of contact are as follows:

City of Irvine: Debby Platt, Great Park Real Property Administrator, dplatt@cityofirvine.org City of Irvine
Engineering Consultant: Derek McGregor, DMc Engineering, dmcgregor@dmceng.com FivePoint
Communities: Jim Werkmeister, Environmental Director, jim.werkmeister@fivepoint.com

We have contacts at Irvine Ranch Water District, but not in the utilities sector. I can put you in touch with those contacts, but I would rather wait to see if you are not able to get the information you require first from other sources.

Thanks

-----Original Message-----

From: Ruggles, Sean R. [mailto:Sean.Ruggles@stvinc.com]

Sent: Tuesday, June 12, 2018 3:58 PM

To: Chammas, Guy A CIV <guy.chammas@navy.mil>

Cc: Sokol, Andrew W. <ANDREW.SOKOL@stvinc.com>; Peterson, Mark A. <Mark.Peterson@stvinc.com>;

lesley.walther@aptim.com; Jinny Hong <jinny.hong@NOREASINC.COM>; Smits, Marc P CIV NAVFAC

HQ, BRAC PMO <marc.smits@navy.mil>; Thurman Heironimus <theironimus@kmea.net>

Subject: [Non-DoD Source] RE: IRP Site 24 Base Maps

Guy

The contacts for the utility agencies you mentioned below would be appreciated. I have contacted some utility companies but through general contact emails from their websites. Thank you for all the help.

Sean Ruggles

• STV Incorporated • 1055 West Seventh Street Suite 3150 • Los Angeles, CA 90017
Phone: 213-673-1918 • Email: Sean.Ruggles@STVInc.com

-----Original Message-----

From: Chammas, Guy A CIV [mailto:guy.chammas@navy.mil]

Sent: Tuesday, June 12, 2018 3:11 PM

To: Ruggles, Sean R. <Sean.Ruggles@stvinc.com>

Cc: Sokol, Andrew W. <ANDREW.SOKOL@stvinc.com>; Peterson, Mark A. <Mark.Peterson@stvinc.com>; lesley.walther@aptim.com; Jinny Hong <jinny.hong@NOREASINC.COM>; Smits, Marc P CIV NAVFAC HQ, BRAC PMO <marc.smits@navy.mil>; Thurman Heironimus <theironimus@kmea.net>
Subject: IRP Site 24 Base Maps

Sean:

We have maps that show monitoring wells and groundwater conveyance lines in the area of interest (see Figures 3 and 4 attached), but if you are looking for traditional utilities, you would probably need to discuss with the City of Irvine and Irvine Ranch Water District. FivePoint Communities would also be a good source. If you need points of contact for those entities, let me know. Otherwise, I can discuss with your colleagues that are attending our next Reuse Forum on 31 July.

I did attach some Navy maps for electrical, gas, sewer, and water lines in the area of interest, but these may be out of date as they were prepared in 1999.

My colleague Marc Smits forwarded me an ALTA/ACSM Land Title Survey that he received from Mark Peterson for the area of interest. It is similar to the maps you attached, but I wanted to bring it up because it identifies two wells (IDP1 and IDP3) that have been destroyed. The map you provided (Sheet 3 of 3) has a cloud note that indicates some utilities were not identified in the field. It appears that the "Monitoring Well?" leader in the cloud refers to IDP3.

Lesley/Jinny:

Can you please provide Sean with the associated CAD/GIS base maps from the latest annual report?

Tim:

Can you please provide Sean and myself with the CAD drawings of the groundwater conveyance lines that you recently obtained from Weston? I'm not sure if you obtained the maps for the area near the SGU Transfer Station since you are working on the easement issue in a different location, but whatever you could provide may be helpful.

Thanks all!

-----Original Message-----

From: Ruggles, Sean R. [mailto:Sean.Ruggles@stvinc.com]

Sent: Tuesday, June 12, 2018 9:31 AM

To: Chammas, Guy A CIV <guy.chammas@navy.mil>

Cc: Sokol, Andrew W. <ANDREW.SOKOL@stvinc.com>; Peterson, Mark A. <Mark.Peterson@stvinc.com>

Subject: [Non-DoD Source] Designing

Guy Chammas

STV is leading the design for a new Metrolink Orange County Maintenance Facility. The project is located as you may know on part of the old MCAS El Toro. I am working on the utility plans. I was hoping you may be able to help me get a hold of any plans of existing Department of the Navy utilities. As you can see from the attached plans, the only information we have is for the surface utilities. The existing utility plans will help us to avoid any conflicts.

Thank you

Sean R. Ruggles

STV Incorporated

1055 West Seventh Street Suite 3150

Los Angeles, CA 90017

Phone: 213-673-1918

Email: Sean.Ruggles@STVInc.com <mailto:Sean.Ruggles@STVInc.com>

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Ruggles, Sean R.

From: Janice Cyprian <JCyprian@mnwd.com>
Sent: Tuesday, July 03, 2018 4:41 PM
To: Ruggles, Sean R.
Subject: Plan Request to Moulton Niguel Water District

Sean;

Thank you for submitting your request for Moulton Niguel Water District facility plans. However, either the request you submitted is not within our facility area OR we have no facilities within the requested area. If you need further assistance, please feel free to contact us.

Regards;

no sig

Janice Cyprian

Records and Mapping Coordinator



Janice Cyprian | Records & Mapping Coordinator

26161 Gordon Rd. | Laguna Hills, CA 92653

o: 949.831.2500 | **d:** 949.425.3528 **c:** 949.795.6791

e: JCyprian@mnwd.com | **visit us:** www.mnwd.com



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