

SECTION 01 57 13

EROSION CONTROL

PART 1 - GENERAL

1.01 SUMMARY

- A. General: Provide all materials, equipment and labor necessary to furnish and install erosion protective measures at locations shown on the drawings and/or in the Contractors Storm Water Pollution Prevention Plan.
- B. Storm Water Pollution Prevention Plan: A Stormwater Pollution Prevention plan is not required for this project due to size and scope of work, however, this does not relieve the contractor of providing erosion protective measures. The contractor will be not be required to prepare a Storm Water Pollution Prevention Plan (SWPPP), nor submit to the State Water Resource Control Board to obtain

PART 2 - PRODUCTS

2.01 EXPECTED MATERIALS (including but not limited to):

- A. Straw Wattles: Shall be new manufactured straw rolls in compliance with state requirements for sediment control.
- A. Filter Bag: Shall be as required by local jurisdiction.
- B. Tarps and covering: Shall be of durable quality free of holes and defects and properly secured to prevent wind disturbance. Tarps over active storage piles need not be secured at all times, but shall be fully secured at end of days work until active the next day.
- C. Spill containment / Washout areas: Contractor to provide spill containment materials and systems suitable for expected materials to be used on site. Washout areas for concrete may consist of pre-manufactured plastic containment binds, or (b) 251958 (c) 1880657 (9) 76744 (e) 528892 (h) 92810 (f) 73959 (i) 602

1.05 PROTECTION

- A. Adequate protection measures shall be provided to protect workmen and passers-by on and off the site. Adjacent property shall be fully protected throughout the operations. Blasting will not be permitted. Prevent damage to adjoining improvements and properties both above and below grade. Restore such improvements to original condition should damage occur. Replace trees and shrubs outside building area disturbed by operations.
- B. In accordance with generally accepted construction practices, the Contractor shall be solely and completely responsible for working conditions at the job site, including safety of all persons and property during performance of the work. This requirement shall apply continuously and shall not be limited to normal working hours.
- C. Safety Precautions Prevent damage to existing elements identified to remain or to be salvaged, and prevent injury to the public and workmen engaged on site. Demolish roofs, walls and other building elements in such manner that demolished materials fall within foundation lines of building. Do not allow demolition debris to accumulate on site. Pull down hazardous work at end of each day; do not leave standing or hanging overnight, or over weekends.
 - 1. Protect existing items which are not indicated to be altered. Protect utilities designated to remain from damage.
 - 2. Protect trees, plant growth, and features designated to remain as final landscaping as shown on drawings.
 - 3. Protect benchmarks from damage or displacement.
- D. Trees: Carefully protect existing trees that are to remain. Provide temporary irrigation as necessary to maintain health of trees.
- E. Fire Safety: The contractor shall conform to chapter 33 of the California Fire Code (CFC), "Fire Safety During Construction and Demolition", at all times during the construction process. A copy of this chapter can be provided.
- F. Any construction review of the Contractor's performance conducted by the Geotechnical Engineer is not intended to include review of the adequacy of the Contractor's safety measures, in, on, or near the construction site.
- G. Surface Drainage: Provide for surface drainage during period of construction in manner to avoid creating nuisance to adjacent areas. The contractor shall make a reasonable effort on a daily basis

1. Re-circuit all electrical as required.
 2. Re-circuit all landscape irrigation valving and control systems as required.
 3. Temporarily terminate landscape system components in approved boxes or with approved caps, suitable for re-connection or extension.
 4. Extend or otherwise modify all site drainage systems, including catch basins, drain inlets and piping. Fine grade to maintain proper drainage flow pattern to drains.
- E. Demolish structure in an orderly and careful manner.
1. Use of explosives prohibited.

SITE DEMOLITION
02 41 00 - 6

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.01 SUMMARY

- A. This Section includes items known commercially as finish or door hardware that are required for swing, sliding, and folding doors, except special types of unique hardware specified in the same sections as the doors and door frames on which they are installed.
- B. This Section includes the following, but is not necessarily limited to:
 - 1.03871(SIR57(-)-0.96 to:8 -13.4276 Td (PART 11.0

1. NFPA 80 – Standard for Fire Doors and Other Opening Protectives
 2. NFPA 105 – Standard for Smoke Door Assemblies and Other Opening Protectives
- F. UL - Underwriters Laboratories.
1. UL 10C – Standard for Positive Pressure Fire Tests of Door Assemblies
 2. UL 305 – Standard for Panic Hardware
- G. WHI - Warnock Hersey Incorporated
- H. SDI - Steel Door Institute

1.03 SUBMITTALS & SUBSTITUTIONS

- A. General: Submit in accordance with Conditions of the Contract and Division 1 Specification sections.
- B. Submit product data (catalog cuts) including manufacturers' technical product information for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
- C. Submit six (6) copies of schedule organized vertically into "Hardware Sets" with index of doors and headings, indicating complete designations of every item required for each door or opening. Include following information:
1. Include a Cover Sheet with;
 - a. Job Name, location, telephone number.
 - b. Architects name, location and telephone number.
 - c. Contractor's name, location, telephone number and job number.
 - d. Suppliers name, location, telephone number and job number.
 - e. Hardware consultant's name, location and telephone number.
 2. Job Index information included;
 - a. Numerical door number index including; door number, hardware heading number and page number.
 - b. Complete keying information (referred to DHI hand-book "Keying Systems and Nomenclature"). Provision should be made in the schedule to provide keying information when available; if it is not available at the time the preliminary schedule is submitted.
 - c. Manufacturers' names and abbreviations for all materials.
 - d. Explanation of abbreviations, symbols, and codes used in the schedule.
 - e. Mounting locations for hardware.
 - f. Clarification statements or questions.
 - g. Catalog cuts and manufacturer's technical data and instructions.
 3. Vertical schedule format sample:
 - a. Single or pair with opening number and location.
 - b. Degree of opening

- C. Provide locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, etc.
- D. Contractor to inventory door hardware jointly with representatives of hardware supplier and hardware installer until each all are satisfied that count is correct.

1.06 WARRANTY

Coordinators	Ives	Trimco, BBW, DCI
Stops	Ives	Trimco, BBW, DCI
Overhead Stop	mco, BW, DCI	

10. Provide cylindrical locksets exceeding the ANSI/BHMA A156.2 Grade 1 performance standards for strength, security, and durability in the categories below:
 - a. Abusive Locked Lever Torque Test – minimum 3,100 inch-pounds without gaining access

bolts or disengage other devices that hold the door in a closed position. Per 11B- 404.2.8.1, door shall take at least 5 seconds to move from an open position of 90 degrees to a position of 12 degrees from the latch jamb.

F. Flush Bolts & Dust Proof Strikes: Ives as scheduled.

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1. Thresholds shall not exceed 1/2" in height, with a beveled surface of 1:2 maximum slope.
2. Set thresholds in a full bed of butyl-rubber or polyisobutylene mastic sealant complying with requirements in Division 7 "Thermal and Moisture Protection".
3. Use 1/4" fasteners, red-head flat-head sleeve anchors (SS/FHSL).
4. Thresholds shall comply with CBC Section 11B-404.2.5.

K. Seals and Surface Applied Hardware: Zero as scheduled.

- | | |
|--------------------------|------------|
| 1. Smoke Seal:488S-BK | Black |
| 2. Weather Seal: 488S-BK | 628 finish |
| -and-
8780N | Factory |

2. A detailed keying schedule is to be prepared by the owner and/or architect in consultation with a representative of Allegion or an Authorized Key Center or Authorized Security Center. Each keyed cylinder on every keyed lock is to be listed separately showing the door #, key group (in BHMA terminology), cylinder type, finish and location on the door.
3. Establish a new master key system for this project as directed by the keying schedule.
4. Furnish all cylinders in the Schlage conventional style except the exit device and removable mullion cylinders which will be supplied in Schlage Full Size Interchangeable Core (FSIC). Pack change keys independently (PKI).
5. Furnish PrimusXP "Classic" keyway Patent Protected Schlage cylinders where noted. Furnish all other cylinders in matching conventional "Classic" keyway. Furnish Patent Protected Schlage keys for all cylinders. (e.g., Primus XP Classic Keyway for patent p1.0387p(- (ate)1.124(ey)0.9748(s)679n).

Authority Having Jurisdiction (AHJ). The inspection of the swinging fire doors shall be performed by a certified FDAI (Fire Door Assembly Inspector) with knowledge and understanding of the operating components of the type of door being subjected to the inspection. The record shall list each fire door assembly throughout the project and include each door number, an itemized list of hardware set components at each door opening, and each door location in the facility.

3.02 INSTALLATION

- A. Install hardware in accordance with manufacturer's instructions and requirements of DHI.
- B. Use the templates provided by hardware item manufacturer.

1. Conform to CCR, Title 24, Part 2; and ADAAG; and the drawings for access-compliant positioning

C. The Door Schedule on the Drawings indicates which hardware set is used with each door.

Manufacturers Abbreviations (Mfr.)

GLY = Glynn-Johnson Corporation
IVE = Ives

Overhead Door Stops
Hinges, Pivots, Bolts, Coordinators, Dust Proof Strikes,
Push Pull & Kick Plates, Door Stops & Silencers

DOOR HARDWARE
08 71 00 - 16

3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	VANDL OFFICE LOCK	ND91LD RHO	626	SCH
1	EA	PRIMUS K-I-L CYL.	20-765-XP	626	SCH
1	EA	OH STOP	100S	630	GLY
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS TKTX	630	IVE
3	EA	SILENCER	SR64	GRY	IVE

HARDWARE GROUP NO. 004 - INTERIOR / STAFF TOILET 106A 107A 228A 229A

QTY	DESCRIPTION	CATALOG NUMBER	FINISH	MFR
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1	EA	ELEC EXIT DEVICE TRIM VDC (PROVIDED BY DIVISION 28)	AD-300-993R-70-MT-RHO-L-LRX 12/24	626	SCE
1	EA	PRIMUS	K-I-L CYL. 20-765-XP	626	SCH
1	EA	MORTISE CYLINDER	20-061 ICX	626	SCH
1	EA	PRIMUS CORE	20-740-XP	626	SCH
2	EA	SURFACE CLOSER	4040XP EDA	689	LCN
2	EA	FLOOR STOP	FS18S	BLK	IVE
2	EA	DOOR SWEEP	328AA	AA	ZER
2	EA	MEETING STILE	328AA-S	AA	ZER
1	EA	MULLION SEAL	8780NBK PSA	BK	ZER
1	EA	GASKETING	488SBK PSA	BK	ZER

1. General and supplementary conditions: Drawings and general provisions of Contract and Division 01 of the Specifications, apply to all Division 26 Sections.
 2. Earthwork: Include trenching, backfilling, boring and soil compaction as required for the installation of underground conduit, in-grade pull boxes, vaults, lighting pole foundations, etc. Refer to Division 31, Earthwork.
 3. Selective demolition: Nondestructive removal of materials and equipment for reuse or salvage as indicated. Also dismantling electrical materials and equipment made obsolete by these installations. Refer to Division 02, Selective Demolition.
 4. Concrete work: Include forming, steel bar reinforcing, cast-in- place concrete, finishing and grouting as required for underground conduit encasement, light pole foundations, pull box slabs, vaults, housekeeping pads, etc. Also includes setting of floor boxes in existing concrete slabs, saw-cutting of existing slabs and grouting of conduits in saw-cut. Refer to Division 03, Concrete.
 5. Miscellaneous metal work: Include fittings, brackets, backing, supports, rods, welding and pipe as required for support and bracing of raceways, luminaires, panelboards, distribution boards, switchboards, motor control centers, etc. Refer to Division 05, Miscellaneous Metals.
 6. Miscellaneous lumber and framing work: Include wood grounds, nailers, blocking, fasteners and anchorage for support of electrical materials and equipment. Refer to Division 06, Rough Carpentry.
 7. Moisture protection and smoke barrier penetrations: Include membrane clamps, sheet metal flashing, counter flashing, caulking and sealant as required for waterproofing of conduit penetrations and sealing penetrations in or through fire walls, floors, ceiling slabs and foundation walls. All penetrations through vapor barriers at slabs on grade shall be taped and made vapor tight. Refer to Division 07, Thermal and Moisture Protection.
 8. Access panels and doors: Required in walls, ceilings, and floors to provide access to electrical devices and equipment. Refer to Division 08, Access Doors also, Division 05, Metals.
 9. Painting: Include surface preparation, priming and finish coating as required for electrical cabinets, exposed conduit, pull and junction boxes, etc. where indicated as field painted in this Division. Refer to Division 09, Painting.
 10. Luminaire supports: Provide slack support wire for luminaires installed in acoustical tile or lay-in suspended ceilings. Refer to Division 09, Acoustical Treatment.
- D. Work furnished and installed under another Division requiring connections under this Division includes but is not limited to:
1. Electric motors.
 2. Package mechanical equipment: fans, fan coil units, pumps, boilers, compressors, etc.
 3. Flow switches and valve monitors for sprinkler system.
 4. Elevator controllers.

5. Pre-wired electrified partition furniture.
 6. Temperature control panel(s). (Line voltage only)
 7. Irrigation controller(s). (Line voltage only)
 8. FM-200 control panel. (Line voltage only)
 9. Kitchen equipment and appliances.
 10. Laboratory equipment.
 11. Electric signage.
 12. Electric door locks.
 13. Electric heat trace tape.
 14. Door hold-open/release devices.
 15. Variable frequency drive units.
 16. Chiller starters.
 17. Motorized roll down/sliding doors and grills.
 18. Motorized dock levelers.
 19. Projection screens.
- E. Items furnished under this Division, but installed and connected under another Division includes but is not limited to:
1. Diesel generator day tank. (Division 22)
 2. Diesel generator silencer. (Division 23)
 3. Generator daytank fuel strainer, manual fuel pump, check valve and any other specified accessories. (Division 22)
 4. Remote radiator for generator. (Division 22)
- F. Items furnished under another Division, but installed and connected under this Division includes but is not limited to:
1. Wall mounted control stations for motorized roll down and sliding doors.
 2. Electric fire sprinkler water flow bells.
 3. Speed control switches for ceiling exhaust fans.

1.02 QUALITY ASSURANCE

- A. Reference to Codes, Standards, Specifications and recommendations of technical societies, trade organizations and governmental agencies shall mean that latest edition of such publications adopted and published prior to submittal of the bid. Such codes or standards shall be considered a part of this Specification as though fully repeated herein.
- B. When codes, standards, regulations, etc. allow Work of lesser quality or extent than is specified under this Division, nothing in said codes shall be construed or inferred authority for reducing the quality, requirements, or extent of the Contract Documents. The Contract Documents address the minimum requirements for construction.

C. Work shall be performed in accordance with all applicable requirements of the latest edition of all governing codes, rules and regulations including but not limited to the following minimum standards, whether statutory or not:

1. California Electric Code (CEC).
2. California Building Code (CBC).
3. California Fire Code (CFC).
4. California Mechanical Code (CMC).

D. Standards: Equipment and materials specified under this Division shall conform to the following standards where applicable:

ACI	American Concrete Institute
ANSI	American National Standards Institute
ASTM	American Society for Testing Materials
CBM	Certified Ballast Manufacturers
ETL	Electrical Testing Laboratories
FS	Federal Specification
IEEE	Institute of Electrical and Electronics Engineers, Inc.

- F. The Manufacturer shall recommend the method of anchoring the equipment to the mounting surface and shall provide the Contractor with the assembly dimensions, weights, and approximate centers of gravity.
- G. Review of submittals is for general conformance to design concept and general compliance with the Specification Sections. Submittal Review Comments do not imply waiver of Specifications Section requirements unless specifically noted.
- H. All resubmittals shall include a cover letter that lists the action taken and revisions made to each Drawing and equipment data sheet in response to Submittal Review Comments. Resubmittal packages will not be reviewed unless accompanied by this cover letter. Failure to include this cover letter will constitute rejection of the resubmittal package.
- I. Shop Drawings for the following systems must be prepared via a computer aided drafting (CAD)building information modeling (Revit) system for777(s made to)JJ 1(tteret.972124(s)io)-1.01338(n) b t

K. Substitutions:

1. All requests for substitutions shall conform to the general requirements and procedure outlined in Division 01.
2. Where items are noted as "or equal," a product of equal design, construction and

2. Record Drawings shall be the transfer of information on these prints to the construction documents via computer aided drafting (CAD)/building information modeling (Revit) process. A set of Revit files of the electrical construction documents will be provided to the Contractor by the Engineer. For the BIM/clash detection process, a Revit file of the electrical construction documents will be provided to the Contractor by the Engineer, which will represent a LOD of 300 design level. The Contractor is responsible for updating the model with changes as well as taking the model to a LOD of 500 design level.
3. Record drawing submissions shall be provided to the Engineer to review upon the completion of the following phases of Work:
 - a. All underground installation.
 - b. Building electrical rough-in.
 - c. Final electrical installation.
4. Include in the record drawing submission the following shop drawing submission with all updated installation information:
 - a. Manufactured wiring system.
 - b. Fire alarm system (fire alarm system) 1.333-1.0T05 (engineering) 0.

BASIC ELECTRICAL REQUIREMENTS

26 00 10 - 10

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- a. CCM number: Use CCM-C1, C2, etc. for memos issued by the Contractor and CCM-E1, E2, etc. for memos issued by the Engineer.
- b. Brief summary of issue and date issued.

1.09 CONTRACT PRICING MODIFICATION PROCEDURES

- A. Submission guidelines: This Section covers the criteria for direct costs, mark-ups, and documentation requirements to be followed by the Contractor for any pricing modification to the Base Contract, where unit pricing has not already been established.
 1. Change orders: Pricing for additions or deletions to the Base Contract Scope of Work upon acceptance of bid value and receipt of authorization to proceed.
 2. Allowances: Cost allowances may be assigned for specific Scope of Work outlined within the Base Contract where design has not been fully delineated on the Contract Documents. When detailed information is available, the Contractor shall prepare and submit a price quotation for the Work. This price quotation will be compared to the allowance value and any adjustments necessary to the Base Contract value shall be made via change order.
- B. Direct costs:
 1. Labor:
 - a. Hourly labor rates shall not exceed the prevailing wage for the County where the Work is being performed. The costs for all supervision, including general superintendents and foremen, shall be included in the mark-up defined herein. Working foremen will be considered a direct cost only if the individual is on the Project site physically installing Work under the change order.
 - b. Labor burden shall be based on rates currently in effect at the time the Work under the change order is being performed and shall include only fringe benefits by governing trade organizations, Federal Insurance Contribution Act, Federal and State Unemployment taxes, payroll taxes and net actual premium paid for public liability, workers' compensation, property damage and other forms of insurance required by the Owner. No other cost will be included as labor burden.
 - c. NECA Manual of Labor Units will be utilized as the basis for determining labor productivity rates for Electrical Work as follows:
 - 1) 85% of NECA column 1 (normal) for change in scope issued well in advance of Work needing to be performed, so as not to cause slow-down or Work stoppage.
 - 2) 100% of NECA column 1 (normal) for Work being performed with other Base Contract Work, not out of sequence and with minimal slow-down or Work stoppage.
 - 3) 100% of NECA column 2 (difficult) for Work performed out of sequence, requiring Work stoppage and reconstruction in areas already complete. This Work may involve the removal of ceiling tiles or the cutting and patching of walls.

- A. All work shall be installed in a neat, workmanlike manner in accordance with ANSI/NECA 1-2015.
- B. Comply with the requirements of all listed codes and standards.
- C. All materials and equipment provided under this contract shall be new (except where otherwise noted) and shall be listed, labeled or certified by a Nationally Recognized Testing Laboratory (NRTL) to meet Underwriters Laboratories, Inc. (UL), standards where test standards have been established. Materials and equipment which are not covered by UL standards will be accepted, providing that materials and equipment are listed, labeled, certified or otherwise determined to meet the safety requirements of a NRTL.
- D. All equipment of the same type and capacity shall be by the same manufacturer.
- E. Where any device or part of equipment is referred to in these specifications in the singular number (e.g., "the switch"), this reference shall be deemed to apply to as many such devices

- J. Owner furnished equipment: Equipment furnished by the District shall be received, stored, uncrated, protected, and installed by the Contractor with all appurtenances required to place the equipment in operation, ready for use. The Contractor shall be responsible for the

10. Install electrical equipment to facilitate servicing, maintenance and repair or replacement of equipment components. As much as practical, connect equipment for ease of disconnecting, with minimum of interference with other installations.
11. Coordinate electrical systems, equipment, and materials installations with other building components.
12. Provide access panel or doors where devices or equipment are concealed behind finished surfaces. Furnish and install access doors per the requirements of Division 08.
13. Install systems, materials and equipment giving right-of-way priority to other systems that are required to maintain a specified slope.
14. Conform to the National Electrical Contractors Association "Standard of Installation" for general installation practice.

3.04 CUTTING, PATCHING, PAINTING AND SEALING

- A. Structural members shall in no case be drilled, bored, or notched in such a manner that will impair their structural value. Cutting of holes, if required, shall be done with core drill and only with the approval of the Architect and Structural Engineer.
- B. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.

1. Testing Agency shall have calibration program that assures test instruments are maintained within rated accuracy.
 2. Instruments shall be calibrated in accordance with the following frequency schedule:
 - a. Field instruments: Analog, 6-months maximum; Digital, 12-months maximum.
 - b. Laboratory instruments: 12-months.
 - c. Leased specialty equipment: 12-months where accuracy is guaranteed by lessor.
 3. Dated calibration labels shall be visible on test equipment.
 4. Records, which show date and results of instruments calibrated or tested, must be kept up to date.
 5. Up-to-date instrument calibration instructions and procedures shall be maintained for test instrument.
 6. Calibration standards shall be of higher accuracy than instrument tested.
 7. Equipment used for field testing shall be more accurate than instrument being tested.
- F. Coordinate with General Contractor regarding testing schedule and availability of equipment ready for testing.
- G. Notify Owner and Engineer one week in advance of any testing.
- H. Any products which fail during the tests or are ruled unsatisfactory by the Owner's Representative shall be replaced, repaired, or corrected as prescribed by the Owner's Representative at the expense of the Contractor. Tests shall be performed after repairs, replacements or corrections until satisfactory performance is demonstrated.
- I. Testing Agency shall maintain written record of tests and shall assemble and certify final test report.
- J. Include all test results in the maintenance manuals.

3.06 CLEANING

- A. Prior to energizing of electrical equipment, the Contractor shall thoroughly clean the interior of enclosures from construction debris, scrap wire, etc. using Manufacturer's approved methods and materials.
- B. Upon completion of Project, prior to final acceptance, the Contractor shall thoroughly clean both the interior and exterior of all electrical equipment per Manufacturers approved methods and materials. Remove paint splatters and other spots, dirt, and debris.
- C. Touch-up paint any marks, blemishes or other finish damage suffered during installation.

3.07 PROJECT CLOSEOUT

- A. Training:
 1. At the time of completion, a period of not less than 4-hours shall be allotted by the Contractor for instruction of building operating and maintenance personnel in the use of all systems. This 4-hour training is in addition to any instruction time called out in the Specifications for specific systems. All personnel shall be instructed at one time, the Contractor making all necessary arrangements with Manufacturer's Representative.

The equipment Manufacturer shall be requested to provide product literature and application guides for the users' reference. Costs, if any, for the above services shall be paid by the Contractor.

2. All training sessions shall be video recorded. Confirm file type, i.e. MOV, AVI, MP4, etc. with the district. Each specification section that requires training shall include one file, and all Division 26 specifications shall be stored on a flash drive (USB3.0, 1TB min.) 3 flash drives shall be provided to the district representative with closeout documentation.
- B. Special tools: Provide one of each tool type required for proper operation and maintenance of the equipment provided under this Section. All tools shall be delivered to the Owner at the Project completion.
- C. Keying: Provide two keys for each lock furnished under this Section and turn over to Owner.

END OF SECTION

SECTION 26 05 29
ELECTRICAL HANGERS AND SUPPORTS

- A. All materials, equipment and parts comprising the units specified herein shall be new, unused, and currently under production.
- B. Only products and applications listed in this Section may be used on the Project unless otherwise submitted.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Products furnished by the following Manufacturers shall be acceptable if in compliance with all features specified herein and indicated on the Drawings.
 - 1. Concrete fasteners:
 - a. Phillips "Red-Head".
 - b. Remington.
 - c. Ramset.
 - 2. Concrete inserts and construction channel:
 - a. Unistrut Corp.
 - b. GS Metals "Globe Strut."
 - c. Thomas & Betts "Kindorf" Corp.
 - 3. Conduit straps:
 - a. O-Z/Gedney.
 - b. Erico "Caddy" Fastening Products.
 - c. Thomas & Betts "Kindorf" Corp.
- B. Substitutions: Under provisions of Section 260010: Basic Electrical Requirements.

2.02 CONCRETE FASTENERS

- A. Provide expansion-shield type concrete anchors.

- A. One-hole strap, steel, or malleable iron, with malleable iron clamp-back spacer for surface mounted wall and ceiling applications.
 - 1. Use malleable strap with spacers for exterior and wet locations.
 - 2. Use steel strap without spacers for interior locations.
- B. Steel channel conduit strap for support from construction channel.
- C. Steel conduit hanger for pendant support with threaded rod
- D. Steel wire conduit support strap for support from independent #12-gauge hanger wires.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Contractor shall thoroughly examine Project site conditions for acceptance of supporting device installation to verify conformance with Manufacturer and Specification tolerances. Do not commence with installation until all conditions are made satisfactory.

3.02 PREPARATION

- A. Coordinate size, shape, and location of concrete pads with Division 03, Cast-in-place concrete.
- B. Layout support devices to maintain headroom, neat mechanical appearance and to support the equipment loads.
- C. Where indicated on the Contract Documents, install freestanding electrical equipment on concrete pads.

3.03 INSTALLATION

- A. Furnish and install supporting devices as noted throughout Division 26.
- B. Electrical device and conduit supports shall be independent of all other system supports that are not structural elements of the building, unless otherwise noted.
- C. Fasten hanger rods, conduit clamps, outlet, and junction boxes to building structure using precast inserts, expansion anchors, preset inserts, or beam clamps.
- D. Use toggle bolts or hollow wall fasteners in hollow masonry, plaster or gypsum board partitions and walls.
- E. Use expansion anchors or preset inserts in solid masonry walls.
- F. Use self-drilling anchors, expansion anchor or preset inserts on concrete surfaces.
- G. Use sheet metal screws in sheet metal studs and wood screws in wood construction.
- H. Do not fasten supports to piping, ductwork, mechanical equipment, conduit, or acoustical ceiling suspension wires.
- I. Do not drill structural steel members unless first approved in writing by the Architect or Structural Engineer.
- J. Fabricate supports from structural steel or steel channel, rigidly welded, or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

- K. Install surface-mounted cabinets and panelboards with minimum of four anchors. Provide additional support backing in stud walls prior to sheet rocking as required to adequately support cabinets and panels.
- L. Bridge studs top and bottom with channels to support flush mounted cabinets and panelboards in stud walls.

3.04 ERECTION OF METAL SUPPORTS

- A. Cut, fit and place miscellaneous metal fabrications accurately in location, alignment and elevation to support and anchor electrical materials and equipment.
- B. Field Welding: Comply with AWS "Structural Welding Code."

3.05 WOOD SUPPORTS

- A. Cut, fit, and place wood grounds, nailers, blocking and anchorage accurately in location, alignment and elevation to support and anchor electrical materials and equipment.

3.06 ANCHORAGE

SECTION 26 05 31

CONDUIT

PART 1 - GENERAL

1.01 SUMMARY

- A. Work included: Labor, materials, and equipment necessary to complete the installation required for the item specified under this Division, including but not limited to:
 - 1. Rigid steel conduit and fittings.
 - 2. PVC insulated rigid steel conduit and fittings.
 - 3. Intermediate metal conduit and fittings.
 - 4. Electrical metallic tubing and fittings.
 - 5. Flexible metallic conduit and fittings.
 - 6. Liquidtight flexible metallic conduit and fittings.
 - 7. Miscellaneous conduit fittings and products.
- B. Related Work: Consult all other Sections, determine the extent and character of related Work, and properly coordinate Work specified herein with that specified elsewhere to produce a complete installation.
 - 1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
 - 2. Division 01: Cutting and patching.
 - 3. Division 07: Sheet metal flashing and trim.
 - 4. Division 09: Painting. Exposed conduit and other devices.

1.02 REFERENCES

- A. Comply with the latest edition of the following applicable Specifications and standards except as otherwise indicated or specified:
 - 1. American National Standards Institute, Inc. (ANSI):
 - ANSI C80.1; Rigid Steel Conduit, Zinc-Coated.
 - ANSI C80.3; Electrical Metallic Tubing, Zinc Coated.
 - ANSI C80.5; Rigid Aluminum Conduit.
 - ANSI/ TIA-569-D Telecommunications Pathways and Spaces.
 - 2. Underwriters Laboratories, Inc. (UL):
 - UL 1; Flexible Metal Conduit.
 - UL 6; Rigid Metal Conduit.
 - UL 360; Liquid-Tight Flexible Steel Conduit.

UL 514B; Conduit, Tubing and Cable Fittings.

UL 635; Insulating Bushings.

UL 797; Electrical Metallic Tubing - Steel.

UL 1242; Intermediate Metal Conduit - Steel.

3. National Electrical Manufacturer Association (NEMA):

NEMA RN1; PVC Externally coated Galvanized Rigid Steel Conduit.

1.03 SUBMITTALS

A. Submit in accordance with the requirements of Section 260010: Basic Electrical Requirements the following items:

1. Data/catalog cuts for each product and component specified herein, listing all physical and electrical characteristics and ratings indicating compliance with all listed standards.
2. Clearly mark on each data sheet the specific item(s) being submitted and the proposed application.
3. Submit Manufacturer's installation instruction. Provide written instructions for raceway products requiring glues, special tools, or specific installation techniques.

1.04 QUALITY ASSURANCE

A. All ml NEMA RN1;97(ml)-1.0wR UL 635; Inf8104079 ml(A05(f(ractance with)-1.F)-1.A(19.(1

c. Thomas & Betts Corp.

- C. Set screw type connectors: Hot dip galvanized, steel, UL listed concrete tight with male hub and insulated plastic throat, 150-degree C temperature rated. Setscrew shall be same as for couplings.
- D. Raintight couplings: Hot dip galvanized, steel; UL listed raintight and concrete tight, using gland and ring compression type construction.
- E. Raintight connectors: Hot dip galvanized, steel, UL listed raintight and concrete tight, with insulated throat, using gland and ring compression type construction.

2.06 FLEXIBLE METALLIC CONDUIT (FMC)

- A. Conduit: Shall be fabricated in continuous lengths from galvanized steel strip, spirally wound and formed to provide an interlocking design and conforming to UL 1.
- B. Fittings: Connectors shall be of the single screw clamp variety with steel or cast malleable iron bodies and threaded male hubs with insulated throats. Exception: Pressure cast screw-in connectors shall be acceptable for luminaire connection in suspended ceilings and cut-in outlet boxes within existing furred walls.

2.07 LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT (LFMC)

- A. Conduit: Shall be fabricated in continuous lengths from galvanized steel strips, interlocking spirally wound, covered with extruded liquidtight jacket of polyvinyl chloride (PVC) and conforming to UL 360. Provide conduit with a continuous copper-bonding conductor wound spirally between the convolutions.
- B. Fittings: Connector body and gland nut shall be of cadmium plated steel or cast malleable iron, with tapered, male, threaded hub; insulated throat and neoprene "O" ring gasket recessed into the face of the stop nut. The clamping gland shall be of molded nylon with an integral brass push-in ferrule.

2.08 MISCELLANEOUS CONDUIT FITTINGS AND PRODUCTS

- A. Watertight conduit entrance seals: Steel or cast malleable iron bodies and pressure clamps

- E. Fire rated penetration seals:
 - 1. UL building materials directory classified.
 - 2. Conduit penetrations in fire rated separation shall be sealed with a UL classified fill, void or cavity material.
 - 3. The fire rated sealant material shall be the product best suited for each type of penetration and may be a caulk, putty, composite sheet, or wrap/strip.
- F. Standard products not herein specified:
 - 1. Provide listing of standard electrical conduit hardware and fittings not herein specified for approval prior to use or installation, i.e. locknuts, bushings, etc.
 - 2. Listing shall include Manufacturers name, part numbers and a written description of the item indicating type of material and construction.
 - 3. Miscellaneous components shall be equal in quality, material and construction to similar items herein specified.
- G. Hazardous area fittings: UL listed for the application.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Contractor shall thoroughly examine Project site conditions for acceptance of conduit system installation to verify conformance with Manufacturer and Specification tolerances. Do not commence with installation until all conditions are made satisfactory.

3.02 APPLICATION

- A. Galvanized rigid steel conduit (GRS) can be used in the following applications:
 - 1. For feeders and branch circuits located indoors, concealed or exposed above suspended ceilings, in damp/wet locations, in crawl spaces, in attics, chases, furred spaces, equipment rooms, loading docks or in hazardous locations in accordance with CEC and local Codes.
 - 2. For feeders and branch circuits concealed in concrete floors and walls when not in contact with earth.
 - 3. For use where conduit is subject to physical damage.
 - 4. For feeders and branch circuits installed exposed on the roof.
- B. PVC insulated galvanized rigid steel conduit can be used in the following applications:
 - 1. Use 40-mil coating for feeders and branch circuits in damp or wet locations.
 - 2. Use 20- or 40-mil for feeders and branch circuits concealed in concrete walls or slabs in contact with earth.
 - 3. Use 20- or 40-mil for runs beneath floor slabs on grade.
 - 4. Use 40-mil for all below grade penetrations through floor slabs on grade or exterior walls.

CONDUIT
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- M. In all empty conduits or ducts, install a "True Tape" conduit measuring tape line to provide overall conduit length for determining length of cables/conductors for future use.
- N. Conduit systems shall be mechanically and electrically continuous throughout. Install code size, insulated, copper, green-grounding conductors in all conduit runs for branch circuits and feeders. This conductor is not indicated on the Drawings. Refer to Section 260526: Grounding and Bonding.
- O. Metallic conduit shall not be in contact with other dissimilar metal pipes (i.e. plumbing).
- P. Make bends with standard conduit bending hand tool or machines. The use of any item not specifically designed for the bending of electrical conduit is strictly prohibited.
- Q. A run of conduit between terminations at wire pulling points shall not contain more than the equivalent of four quarter bends (360-degrees, total).
- R. A run of communications and signal conduit between terminations at wire pulling points shall not contain more than the equivalent of two quarter bends (180-degrees, total).
- S. Emergency power raceway system: Install entirely independent of other raceway systems, except where specifically allowed by CEC Article 517.

3.05 PENETRATIONS

- A. Locate penetrations and holes in advance where they are proposed in the structural sections such as footings, beams, wall, etc. Penetrations are acceptable only when the following occurs:
 - 1. Where indicated on the Structural Drawings.
 - 2. As approved by the Structural Engineer prior to construction and after submittal of Drawing showing location, size, and position of each penetration.
- B. Cutting or holes:
 - 1. Cut holes through concrete, masonry block or brick floors and floors of structure with a diamond core drill or concrete saw. Pneumatic hammer, impact electric, hand or manual hammer type drills are not allowed, except where permitted by the Structural Engineer as required by limited working space. Obtain the approval of the Structural Engineer prior to drilling through structural sections.
 - 2. Provide sleeves or "can outs" for cast-in-place concrete floors and walls. Following conduit installation, seal all penetrations using non-iron bearing, chloride free, non-shrinking, dry-pack grouting compounds; or fire rated penetration-sealing materials.
 - 3. Cut holes for conduit penetrations through non-concrete and non-masonry walls, partitions, or floors with a hole saw. The hole shall be only as large as required to accommodate the size of the conduit.
 - 4. Provide single piece escutcheon plates around all exposed conduit penetrations in public places.
- C. Sealing:
 - 1. Non-rated penetrations: Pack opening around conduits with non-flammable insulating material and seal with gypsum wallboard taping compound.

terminations are subject to vibration, use bonding bushings or wedges to assure electrical

3.08 HAZARDOUS LOCATIONS

- A. Use rigid steel conduit only.
- B. Install UL approved sealing fittings that prevent passage of explosive vapors in accordance with the Manufacturers written instructions. Locate fittings at suitable, approved, accessible locations and fill them with UL-listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank coverplate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings at the following points and

END OF SECTION

SECTION 26 05 33

BOXES

PART 1 - GENERAL

1.01 SUMMARY

- A. Work included: Labor, materials, and equipment necessary to complete the installation required for the item specified under this Division, including but not limited to:
 - 1. Wall and ceiling outlet boxes.
 - 2. Pull and junction boxes.
- B. Related Work: Consult all other Sections, determine the extent and character of related Work, and properly coordinate Work specified herein with that specified elsewhere to produce a complete installation.
 - 1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.

- A. All materials, equipment and parts comprising the units specified herein shall be new, unused, and currently under production.
- B. Only products and applications listed in this Section may be used on the Project unless otherwise submitted.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Products furnished by the following Manufacturers shall be acceptable if in compliance with all features specified herein and indicated on the Drawings.
 - 1. Outlet and junction boxes:
 - a. Spring City Electrical Manufacturing Co.
 - b. Thomas & Betts Corp.
 - c. Raco, Inc.
 - 2. Cast boxes:
 - a. Appleton Electric Co.
 - b. Crouse-Hinds.
 - 3. Floor boxes:
 - a. Legrand.
 - b. Hubbell Inc.
 - c. Raceway Components, Inc.
 - 4. Pullboxes:
 - a. Circle AW Products.
 - b. Hoffman Engineering Co.
- B. Substitutions: Under provisions of Section 260010: Basic Electrical Requirements.

2.02 OUTLET BOXES

- A. Standard outlet box:
 - 1. Provide galvanized, one-piece die formed or drawn steel or welded, knockout type box of size and configuration best suited to the application indicated on the Drawings.
 - 2. 4-inch square by 2-1/4-inch deep shall be minimum box size.
 - 3. ANSI/NEMA OS 1.
- B. Concrete box:
 - 1. Provide galvanized steel, 4-inch octagon rings with mounting lugs, backplate and adapter ring as required.
 - 2. Select height as necessary to position knockouts above concrete reinforcing steel.
 - 3. ANSI/NEMA OS 1.

- C. Tile box:
 - 1. Provide outlet boxes for installation in tile or concrete block walls.
 - 2. Standard outlet boxes with raised, square corners and device covers are acceptable.
 - 3. ANSI/NEMA OS 1.
- D. Cast metal outlet body:
 - 1. Provide 4-inch round, galvanized cast iron alloy with threaded hubs and mounting lugs as required.
 - 2. Provide boxes with cast cover plates of the same material as the box and neoprene cover gaskets.
- E. Conduit outlet body: Provide malleable iron, oblong conduit outlet bodies with threaded conduit hubs and neoprene gasket, cast iron covers.

2.03 PULL AND JUNCTION BOXES

- A. Sheet metal pull and junction box:
 - 1. Provide standard outlet or concrete ring boxes wherever possible; otherwise use minimum 16-gauge galvanized sheet metal, NEMA 1 boxes, sized to Code requirements with covers secured by cadmium plated machine screws located 6 inches on centers.
 - 2. ANSI/NEMA OS 1.
- B. Flush mounted pullboxes and junction boxes: Provide overlapping covers with flush cover

2.43OR (BOXES) TJ 36 - 19278 Td (A.)-805.023 Refear 262 efor fill for mounted dsners

- A. Contract for the installation of the boxes in the ceiling, wall, or floor. The boxes shall be installed in accordance with the manufacturer's instructions.

PULL AND JUNCTION BOXES

- A. Install outlet boxes in ceilings, walls, and floors. The boxes shall be installed in accordance with the manufacturer's instructions.
- B. Install junction boxes in accordance with the manufacturer's instructions.
- C. Install outlet boxes in accordance with the manufacturer's instructions.
- D. Install outlet boxes in accordance with the manufacturer's instructions.

- E. Locate outlet boxes above hung ceilings having concealed suspension systems, adjacent to openings for removable recessed luminaires.
- F. Do not install outlet boxes back-to-back, separate boxes by at least 6". In fire-rated walls separate boxes by at least 24" and wall stud.
- G. Adjust position of outlet boxes in finished masonry walls to suit masonry course lines. Coordinate

- B. Mount boxes, installed in suspended ceilings of gypsum board or lath and plaster construction, to 16-gauge metal channel bars attached to main ceiling runners.
- C. Support boxes independently of conduit system.
- D. Support boxes, installed in suspended ceilings supporting acoustical tiles or panels, directly from the structure above wherever pendant mounted luminaires are to be installed from the box.
- E. Support boxes mounted above suspended acoustical tile ceilings, directly from the structure above.

END OF SECTION

SECTION 26 05 43

UNDERGROUND DUCTS AND STRUCTURES

PART 1 - GENERAL

1.01 SUMMARY

- A. Work included: Labor, materials, and equipment necessary to complete the installation required for the item specified under this Division, including but not limited to:
 - 1. Underground conduits and ducts.
 - 2. Handhole and pullboxes.
 - 3. Excavation, trenching and backfill.
- B. Related Work: Consult all other Sections, determine the extent and character of related Work, and properly coordinate Work specified herein with that specified elsewhere to produce a complete installation.
 - 1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
 - 2. Division 31 - Earthwork: General requirements for Excavation and Backfill and related items for ducts, manholes, pullboxes and handholes.
 - 3. Division 03 - Cast-in-place concrete: Protective envelope for ducts.

1.02 REFERENCES

- A. Comply with the latest edition of the following applicable Specifications and standards except as otherwise indicated or specified:
 - 1. American Concrete Institute (ACI):
 - ACI 318; Building Code Requirements for Structural Concrete
 - 2. American National Standards Institute, Inc. (ANSI):
 - 3. American Society for Testing And Materials (ASTM):

3. Shop Drawings showing details and design calculations for precast handholes, including reinforced steel.
4. Submit Manufacturer's installation instructions.
5. Complete bill of material listing all components.

1.05 QUALITY ASSURANCE

- A. Contractor shall thoroughly examine Project site conditions for acceptance of duct and manhole installation to verify conformance with Manufacturer and Specification tolerances. Do not commence with installation until all conditions are made satisfactory.

3.02 EARTHWORK

- A. Excavation and backfill: Conform to Division 31, Earthwork.
- B. Excavation for underground electrical structures: Conform to elevations and dimensions indicated within a tolerance of plus or minus 0.10 foot; plus, a sufficient distance to permit placing and removal of concrete formwork, installation or services, other construction and for inspection.
 - 1. Excavate, by hand, areas within dripline of large trees. Protect the root system for damage and dry-out. Maintain moist conditions for root system and over exposed roots with burlap. Paint root cuts of 1 inch in diameter and larger with emulsified asphalt tree paint.
 - 2. Take care not to disturb bottom of excavation. Excavate by hand to final grade just before concrete reinforcement is placed.
- C. Trenching: Excavate trenches for electrical installation as follows:
 - 1. Excavate trenches to the uniform width, sufficiently wide to provide ample working room and a minimum of 6 to 9 inches clearances on both sides of raceways and equipment.
 - 2. Excavate trenches to depth indicated or required.
 - 3. Limit the length of open trench to that in which installations can be made and the trench backfilled within the same day.
 - 4. Where rock is encountered, carry excavation below required elevation and backfill with a layer of crushed stone or gravel prior to installation of raceways and equipment. Provide a minimum of 6 inches of stone or gravel cushion between rock bearing surface and electrical installations.
- D. Backfilling and filling: Place soil materials in layers to required sub-grade elevations for each area classification, using materials and methods specified in Division 31: Earthwork.
 - 1. Under building slabs, use drainage fill materials.

3.03 CONDUIT AND DUCT INSTALLATION

- A. Install duct lines in accordance with Manufacturer's written instructions, as indicated on the Drawings and as specified herein.
- B. Application:
 - 1. Direct burial ducts: Schedule 40, minimum 24-inches below finished grade.
 - 2. Below building slab-on-grade: Schedule 40, minimum 4-inches below bottom of slab except that bends and penetrates through floor slab shall be insulated galvanized rigid steel conduit.
 - 3. Below roads and paved surfaces:
 - a. Schedule 80, minimum 36-inches below finished grade.
 - 4. Utility pole riser: Schedule 80.
 - 5. Penetrations of building and equipment slabs: Insulated galvanized rigid steel conduit .

2.03 EXTRA STOCK

- A. For each increment of 100 controlled doors furnish:
1. Quantity 5 of current model door controller.
 2. Quantity 7 of current model card reader.

PART 3 - EXECUTION

2. Surface raceway and components shall be Wiremold 2300.

3.05 EQUIPMENT INSTALLATION

A. Power supplies and electric strike to use 24VDC and 16AWG wire.

B. Power supplies shall be centrally located in the nearest MDF/IDF.

3.09 CONFIGURATION

- A. Program all network equipment with network IP address information obtained from Electronics/Lock Shop.
- B. All equipment to be fully configured and tested for functionality prior to testing.

3.10 FIELD QUALITY CONTROL AND TESTING

- A. Upon reaching substantial completion, perform a complete test and inspection of the system. If found to be installed and operating properly, notify District of your readiness to perform the formal Test & Inspection of the complete system.
- B. Submit the Record Drawings (as-builts) to District for review prior to inspection.
- C. During the formal Test & Inspection (Commissioning) of the system the Contractor shall have personnel available with tools and equipment to inspect wiring, devices, and system operation.
- D. If corrections are needed, the Contractor will be provided with a Punch-List of all discrepancies. Perform the needed corrections in a timely fashion.
- E. Notify the District when ready to perform a re-inspection of the installation.
- F. District or its representative to provide final sign-off for acceptance.

3.11 AS-BUILT DRAWINGS

- A. See section 27 00 00 for requirements.
- B. As-built riser diagram showing all access control components for site.

SECTION 28 20 00

VIDEO SURVEILLANCE

PART I - GENERAL

1.01 SUMMARY

- A. This section specifies software, equipment, accessories, wire, materials, installation, configuration, and testing requirements for a complete and operable Video Surveillance system. The system shall provide electronic recording/playback and monitoring of digital cameras installed at the site.

1.02 SCOPE

- A. The work will include but not be limited to the following objectives:
 - 1. Labor and Materials: The Contractor shall provide and pay for all labor, supervision, materials, accessories, wire, components, equipment, tools, transportation, and other facilities and services necessary for the proper installation of a turn-key Video Surveillance system to District.
- A. The CCTV system shall have the following minimum requirements.
 - 1. Cameras
 - a. Weather resistant IP67 or greater (exterior only)
 - b. Network/IP based
 - c. PoE powered
 - d. 5MP or 4K resolution
 - e. H.265 video compression
 - f. Day/night with IR illumination
 - g. Motion detection
 - h. ONVIF
 - 2. Network Video Recorder
 - a. Network/IP based
 - b. H.265 video compression
 - c. RAID 5 or greater
 - d. Record on motion detection
 - e. 30+ day recording
 - C. Software
 - a. PC and Mobile viewing
 - b. View live and recorded video
 - c. Search
 - d. Save video to MP4 format
 - e. Notifications

1.03 RELATED REQUIREMENTS

- A. Division 01 - General Requirements
- B. Section 27 00 00 - Communications
- C. Section 27 05 00 - Common Work Results for Communication Systems.
- C. Section 27 10 00 - Structured Cabling

1.04 QUALIFICATIONS

- A. Contractor shall be located within 50 miles or less from the project site to support 2-hour response time.
- B. Five years' experience installing Video Surveillance equipment systems.

1.05 SYSTEM REQUIREMENTS

- A. Any new installations or existing system modifications shall seamlessly integrate into the site's existing Video Surveillance system.

1.06 CONTRACTOR "SHOP DRAWINGS" DESIGN REQUIREMENTS

- A. See section 27 00 00 for requirements.
- B. Shop drawings are required for this section

1.07 SUBMITTALS

- A. See section 27 00 00 for requirements.

1.08 WARRANTY

- A. Refer to Division 01 Warranty section.
- B. See section 27 00 00 for additional requirements.

1.09 CLOSEOUT DOCUMENTS

- A. See section 27 00 00 for requirements.

PART 2 - PRODUCTS

2.01 GENERAL

- A. See Appendix A at the end of this document for pre-approved materials.
- B. All products shall be new, unused and without blemishes and shall be of manufacturer's current and standard production.
- C. Drawings and Specifications indicate major system and manufacturer's

VIDEO SURVEILLANCE

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VIDEO SURVEILLANCE

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Network Video Recorder 48TB	i-PRO	NVR-RL-2-48TB-V3
NVR license	i-PRO	ASM-300
Network Dome Camera, Outdoor, Vandal Resistant, 5MP with Base Bracket	i-PRO	WV-S25500-V3LN
Network Dome Camera, Indoor, 5MP with Base Bracket	i-PRO	WV-S22500-V3L
Network Camera, Outdoor 360-degree, Vandal Resistant, 5MP with Base Bracket	i-PRO	WV-S4551L
Pendant Wall Mount Kit	i-PRO	PWM485S
Pendant Corner Mount Kit	i-PRO	PCM485S
Pendant Pole Mount Kit	i-PRO	PPM485S
Wall Mount Bracket	i-PRO	WV-QWL500-W
Back Box	i-PRO	WV-QJB500-W
Corner Bracket	i-PRO	WV-QCN500-W
Sunshade	i-PRO	WV-QSR500-W
Dome Cover	i-PRO	WV-CW7SN
2 RU Din Rack Mount Adapter	Antaira	DIN-Rack-2U
240W Power Supply	Antaira	NDR-240
960W Power Supply	Antaira	SDR-960-48
10-Port Industrial Gigabit PoE+ Managed Ethernet Switch	Antaira	LMP-1002G-SFP
20-Port Industrial Gigabit PoE+ Managed Ethernet Switch	Antaira	LMP-2004G-SFP
28-Port Industrial Gigabit PoE+ Switch 1RU	Antaira	LNP-2804GN-SFP-T
Gigabit Ethernet-Single Mode Transceiver	Antaira	SFP-S10-T
Video Intercom	Avigilon	3.0C-H4VI-RO1-IR

END OF APPENDIX A
END OF SECTION

SECTION 31 00 00

EARTHWORK

PART 1 - GENERAL

1.01 SUMMARY

A. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 01 50 00, Construction Facilities and Temporary Controls.
3. Section 01 57 13, Erosion Control
4. Section 31 23 33, Trenching and Backfilling.
5. Section 32 12 00, Asphalt Concrete Paving.
6. Section 32 16 00, Site Concrete.

1.02 SUBMITTALS

A. Refer to Section 01 33 00.

B. Manufacturer's Data: Submit list and complete descriptive data of all products proposed for use. Include m[(l)0.967147(33981943(e)2.015(b)-0.957731(a)-1.02768(c)9.00159(t)8.(.)-.1924(a)-1.0d965801(C)-2.

compaction or moisture content are the responsibility of the contractor. Contractor shall be solely responsible for any and all repairs.

1.04 WARRANTY

- A. Refer to General Conditions and Section 01 78 36.

1.05 REFERENCES AND STANDARDS

- A. General: Site survey, included in the drawings, was prepared by _____, dated _____, and is the basis for data regarding current conditions. While the survey is deemed generally accurate, there exists discrepancies and variations due to elapsed time, weather, etc. Existing dirt grades may vary 0.2 ft. from that shown.
- B. Geotechnical Engineering Report was prepared by _____. Report is entitled _____, and is on file with Architect. Recommendations of the Geotechnical report were used to develop the contract plans and specifications. The Geotechnical report shall be used as a reference for the soil condition of the project site. The design information contained in the contract plans and specifications shall govern over the recommendation of the Geotechnical report.
- C. Site Visitation: All bidders interfacing with existing conditions shall visit the site prior to bid to verify general conditions of improvements. Discrepancies must be reported prior to the bid for clarification.
- D. ANSI/ASTM D698-e1 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
- E. ANSI/ASTM D1556-e1 - Test Method for Density of Soil in Place by the Sand-Cone Method.
- F. ANSI/ASTM 698-12e2 Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
- G. ANSI/ASTM D 3017-05 Test Methods for Moisture Content of Soils and Soil-Aggregate Mixture by Nuclear Methods (Shallow Depth).
- H. ANSI/ASTM D 4318-10e1 Test Method for Liquid Limit, Plastic Limit, and Plasticity Limit.
- I. CALTRANS Standard Specifications Section 17.

- generated without damaging or triggering the existing systems.
- d) All empty conduit pathways or pipe in which a signal probe or sonde (miniature transmitter) can be inserted.
 - e) All conduit pathways containing non-conductive cables or wires in which a signal probe or sonde (miniature transmitter) can be inserted.
 - f) All plastic and other nonconductive water lines in which a TransOnde Radio detection) or other "transmitter" can be applied to create a low frequency pressure wave (signal) without damaging or triggering the existing systems.
 - g) All copper or steel waterlines and plastic or steel gas lines
- 6. All markings made by the Underground Utility Locator Service or other shall be clear and visible.
 - 7. The contractor shall maintain all markings made by Underground Utility Locator Service or other throughout the entire length of the project.
 - 8. The Underground Utility Locator Service shall provide the contractor with two sets of maps showing the location of utilities and average depth. They will be referenced to permanent buildings. Contractor will deliver one copy to the district at no additional charge.
 - 9. Contractor is responsible to contact Underground Service Alert (U.S.A. 800/227-2600) and receive clearance prior to any excavation operations.
 - 10. Contractor shall inform the (District's Construction Manager) (Architect) (Owner) no later than five (5) days prior to the date scheduled for the utility locator service to be on site.

1.10 PROTECTION

- A. Adequate protection measures shall be provided to protect workmen and passers-by on and off the site. Adjacent property shall be fully protected throughout the operations. Blasting will not be permitted. Prevent damage to adjoining improvements and properties both above and below grade. Restore such improvements to original condition should damage occur. Replace trees and shrubs outside building area disturbed by operations.

B. Imported Engineered Fill Material: Imported fill may be require

- B. Selected fill material shall be moisture-conditioned to specified moisture content. Selected fill material shall be unfrozen. When moisture content of fill material is below that specified, add water until proper moisture content is achieved. When moisture content is above that specified, aerate by blading or other methods mentioned in 3.08 B until moisture content is satisfactory.
- C. After each layer has been placed, mixed and spread evenly, it shall be thoroughly compacted to a minimum of 90% as determined by the ASTM D1557 Compaction Test. Compact each layer over its entire area until desired density has been obtained.
- D. Recompaction of Fill in Trenches and Compaction of Fill Adjacent to Walls: Where trenches must be excavated, backfill with material excavated. Place in lifts that when compacted do not exceed 6", moisture conditioned to (optimum)(2% above optimum) moisture content, and compact to a minimum of 90% relative compaction in building pad and paved areas, and to 90% relative compaction in landscape areas.
- E. Jetting of fill materials will not be allowed.

3.10 FINAL SUBGRADE COMPACTION

- A. Paved Areas: Upper 6" of all final subgrades supporting pavement sections and all other flatwork shall be brought to specified moisture content and shall be uniformly compacted to not less than 90% of maximum dry density, regardless of whether final subgrade elevation is attained by filling, excavation, or is left at existing grade. After acceptance of final compaction test, contractor shall maintain the required moisture content of subgrade until concrete flatwork is placed.
- B. Other Fill and Backfill: Upper 10" of all other final subgrades or finish grades shall be compacted to 90% of maximum dry density.
- C. Gravel Fill: Do not place compacted gravel fill until after underground work and foundations are in place. Compact gravel fill with vibratory plate or similar equipment to preclude settlement.

3.11 PLACING, SPREADING, AND COMPACTION OF LANDSCAPE BACKFILL MATERIALS

- A. All landscaped areas shall receive topsoil. After subgrade under landscape area has been scarified and brought to 90% maximum dry density, top soil shall be placed evenly to depth of 8" at 85% of maximum dry density.
- B. Project Inspector must verify that materials are uniformly spread to minimum depth specified.

3.12 DECOMPOSED GRANITE COMPACTION AND STABILIZATION

- A. Decomposed granite paving, paths or track shall be placed uniformly to the required depth and treated with PolyPavement or approved equal. Apply PolyPavement using Application Method 1 or a mixed application method.

3.13 SLOPE CONSTRUCTION

- A. Cut slopes shall be constructed to no steeper than 2:1 (horizontal:vertical). Fill slopes shall be constructed to no steeper than 3:1 (horizontal:vertical). Prior to placement of fill on an existing slope the existing slope shall be benched. The benches shall be in a ratio of 10 horizontal to 1 vertical. The face of the fill slopes shall be compacted as the fill is placed, or the slope may be overbuilt and then cut back to the design grade. Compaction by track walking will not be allowed.

3.14 FINISH GRADING

- A. At completion of project, site shall be finished graded, as indicated on Drawings. Finish grades shall be "flat graded" to grades shown on the drawing. Mounding of finish grades will not be allowed unless otherwise directed on the landscape drawings. Tolerances for finish grades in drainage swales shall be +/-0.05'. Tie in new and existing finish grades. Leave all landscaped areas in finish condition

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SECTION 31 13 16

TREE PROTECTION

1.01 SUMMARY

A. Section Includes:

1. Tree protection complete as shown and as specified.

B. Related Sections:

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 00 00 00 – Site Demolition.

1.02 SUBMITTALS

- A. Contractor shall submit Tree Protection Area plan to Architect outlining all trees and plants listed by number to be protected and their groupings. All trees and plants shall be grouped in their own Fenced Tree Protection Areas as shown in Drawings.
- B. Contractor shall submit to Landscape Architect in writing a schedule including any and all activity inside Fenced Tree Protection Areas. This schedule to include but not limited to the dates fences are initially installed, altered and dates of fence replacement. Intent of these provisions is that the Tree Protection Zone (TPZ) are fenced for the entire duration with only exceptions of short intervals or specifically defined construction activity needs. Revise schedule as directed by Architect.
- C. Provide a Mediation Plan to keep existing trees and planting irrigated during construction.

1.03 WARRANTY

- A. Guarantee all workmanship and materials hereunder against defective workmanship and materials, including damage by leaks and settlement of irrigation trenches, for the duration specified in Division 01 of these Specifications. (The Contractor is not responsible for vandalism or theft after date of final acceptance.)

2.01 MATERIALS

- A. Use materials as specified; any deviation from the Specifications must first be approved by the Owner's Representative in writing. All material containers or certificates shall be clearly marked by manufacturer as to contents for inspection.

- C. Replace repaired trees where repair has not restored them to health or aesthetics:
 - 1. within 6 months of request to replace,
 - 2. to the satisfaction of Landscape Architect,
 - 3. with replacement plants of a size and variety matching those that were removed

- D. Replaced trees and plants shall be the responsibility of Contractor to maintain in good health and

SECTION 31 23 33

TRENCHING AND BACKFILLING

1.01 SUMMARY

A. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 01 50 00, Construction Facilities and Temporary Controls.
3. Section 01 57 13, Erosion Control
4. Section 31 23 33, Trenching and Backfilling.
5. Section 32 12 00, Asphalt Concrete Paving.
6. Section 32 16 00, Site Concrete.
7. Section 33 40 00, Site Drainage.

1.02 QUALITY ASSURANCE

- A. Use only new materials and products, unless existing materials or products are specifically shown otherwise on the Drawings to be salvaged and re-used.
- B. All materials, components, assemblies, workmanship and installation are to be observed by the Owner's Inspector of Record. Work not so inspected is subject to uncovering and replacement.
- C. Contractor / Installer shall have been in business for five (5) years providing/finishing similar size projects and complexity.

1.03 SUBMITTALS

- A. Refer to Section 01 33 00.
- B. Submit Manufacturers data and shop drawings.

1.04 WARRANTY

- A. Submit fully executed warranty for work and materials in this section per 01 78 36.

1.05 REFERENCES AND STANDARDS

- A. California Building Code current edition.

- A. Transport, store and handle in strict accord with the local jurisdiction.
- B. Make delivery to job when notified by Contractor verifying that the job is ready to receive the work of this Section and that arrangements have been made to properly store, handle and protect such materials and work.

1.07 PROJECT CONDITIONS

- A. Contractor shall acquaint himself with all existing site conditions. If unknown active utilities are encountered during work, notify Architect promptly for instructions. Failure to notify will make Contractor liable for damage to these utilities arising from Contractor's operations subsequent to discovery of such unknown active utilities.
- B. Field verify that all components, backing, etc. by others are installed correctly to proceed with installation of products as herein specified.
- C. Trench dewatering may be necessary. Contractor shall provide any and all tools, equipment and labor necessary for trench dewatering no matter what the source. Dewatering shall be continuous until all site utilities are installed and backfilled.

1.08 PROTECTION

- A. Adequate protection measures shall be provided to protect workers and passers-by on and off the site. Adjacent property shall be fully protected throughout

3.01 INSPECTION

A. Verification of Conditions:

1. Examine areas and conditions under which work is to be performed.
2. Identify conditions detrimental to proper or timely completion of work and coordinate with General Contractor to rectify.

3.02 COORDINATION

- A. General Contractor shall coordinate work as herein specified, in accordance with drawings and as

1. Bedding: Layer of material directly under the pipe upon which the pipe is laid.
 2. Pipe Zone: Backfill from the top of the bedding to 6 inches (compacted) over the top of the pipe.
 3. Upper Zone: Backfill between top of Pipe Zone and to surface of subgrade.
- B. Bedding: Type of material and degree of compaction for bedding backfill shall be as defined in the Details and Specifications.
- C. Pipe Zone and Upper Zone Backfill:
1. Type of material and degree of compaction Pipe Zone and Upper Zone Backfill shall be as required by Drawings, Details, & Specifications.
 2. Upper Zone Backfill shall not be placed until conformance of Bedding and Pipe Zone Backfill with specified compaction test requirements has been confirmed.
 3. Backfill shall be brought up at substantially the same rate on both sides of the pipe and care shall be taken so that the pipe is not floated or displaced. Material shall not be dropped directly on pipe.
- D. Backfill Compaction:
1. Backfill shall be placed in layers which, when compacted shall not exceed 6 inches in thickness. Each layer shall be spread evenly and thoroughly mixed to insure uniformity. Do not backfill over, wet, frozen or soft subgrade surfaces. Employ a placement method that does not disturb or damage foundation walls, perimeter drainage, foundation damp-proofing, waterproofing or protective cover.
 2. When moisture content of fill material is below that required to achieve specified density, add water until proper moisture content is achieved. When moisture content is above that required, aerate by blading or other methods until specified moisture content is met, see section 310000, 3.08, B.
 3. After each layer has been placed, mixed and spread evenly, it shall be thoroughly compacted to ____% of maximum dry density while at specified moisture content. Compact each layer over its entire area until desired density has been obtained.
 4. The top ___ inches of subgrade compaction under pavement or building shall be per Earthwork section 31 00 00.
 5. Compaction: All backfill operations shall be observed by the Inspector of Record and/or Geotechnical Engineer. Field density tests shall be made to check compaction of fill material. If densities are not satisfactory, Contractor will be required to change equipment or procedure or both, as required to obtain specified densities. Notify Inspector and Architect at least 24 hours in advance of any operation.

3.06 TRENCH AND SITE RESTORATION

- A. Finished surface of trenches shall be restored to a condition equal to, or better than the condition as existed prior to excavation work.

3.07 PROTECTION

- A. Protect existing surfaces, structures, and utilities from damage. Protect work by others from damage. In the event of damage, immediately repair or replace to satisfaction of Owner.
- B. Repair existing landscaped areas to as new condition. Replant trees, shrubs or groundcover with existing materials if not damaged or with new materials if required. Replace damaged lawn areas with sod, no seeding will be permitted.
- C. Replace damaged pavement with new compatible matching materials. Concrete walks to be removed to nearest expansion joint and entire panel replaced. Asphalt to be cut neatly and replaced with new materials.
- D. Any existing materials removed or damaged due to trenching to be returned to new condition.

3.08 SURPLUS MATERIAL

- A. Remove excess excavated material, unused materials, damaged or unsuitable materials from site.

3.09 CLEANING

- A. Refe itrial,eA
- B. Con(A)0.980ractor willriaep tite work areas in a clean condition so his rubbish, waste, and debris do

SECTION 32 12 00

ASPHALT CONCRETE PAVING

PART 1 - GENERAL

1.01 SUMMARY

A. SECTION INCLUDES:

1. Asphalt paving mix designs.
2. Aggregate Base Course.
3. Asphalt Overlay.
4. Seal Coat and Striping.

B. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this

1.04 SUBMITTALS

- A. Refer to Section 01 33 00.
- B. Manufacturer's Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.

1.05 WARRANTY

- A. Refer to General Conditions and Section 01 78 36.

1. Base Course: Do not lay base course on muddy subgrade, during wet weather, or when atmospheric temperature is below 40 degrees F.
 2. Asphalt Surfacing: Do not apply asphaltic surfacing on wet base, during wet weather, or when atmospheric temperature is below 50 degrees F.
- B. Contractor shall acquaint himself with all site conditions. If unknown active utilities are encountered during work, notify Architect promptly for instructions. Failure to notify will make Contractor liable for damage to these utilities arising from Contractor's operations subsequent to discovery of such unknown active utilities.

does not exceed 15% of the aggregate blend.

2.02 MIXES

- A. General: Plant mixed conforming to State Specifications, Section 39, Type B, ½" maximum, medium grading. 3/8" maximum grading shall be used at hardcourt.

header so they will not be visible on completion of job.

B. Asphalt Paving:

1. **Base Course:** Install in accord with State Specifications, Section 26. Compact to relative compaction of not less than 95%, ASTM D1557. The material shall be deposited on the subgrade in such a manner as to provide a uniform section of material within five percent tolerance of the predetermined required depth. Deposition will be by spreader box or bottom dump truck to prevent segregation of the material. The material so deposited on the subgrade shall have sufficient moisture which, in the opinion of the Architect is adequate to prevent excessive segregation. It shall then be immediately spread to its planned grade and cross section. Undue segregation of material, excessive drifting or spotting of material will not be permitted. If in the opinion of the site geotechnical engineer, the material is unsuitably segregated, it shall be removed or completely reworked to provide the desired uniformity of the material.
 - a. Moisture content and compaction of base material shall be tested immediately prior to placement of asphalt paving.
2. **Sterilant:** Apply specified material at manufacturer's recommended rate. Applicator of sterilant material shall be responsible for determining location of all planter areas. Apply specified material over entire base course area just prior to application of asphalt. Follow manufacturer's printed directions.
3. **Liquid Asphalt Tack Coat:** Apply as "tack coat" to all vertical surfaces of existing paving, curbs, walks, and construction joints in surfacing against which paving is to be placed.
4. **Asphalt Concrete Surface Course:**
 - a. Comply with State Specifications, 39-6 except as noted in the contract documents.

ASPHALT CONCRETE PAVING

32 12 00 - 7

SECTION 32 16 00

SITE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

A. SECTION INCLUDES:

1. The Section describes the requirements for providing portland cement concrete paving, including accessibility ramps, sidewalks, accessible routes of travel, vehicular travel, drain structures, sewer structures, thrust blocks and for other non-structural or non-vehicular applications.

B. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 01 50 00, Construction Facilities and Temporary Controls.
3. Section 31 00 00, Earthwork.

1.02 REFERENCES AND STANDARDS

- A. California Building Code, latest edition.
- B. ACI Standards, ACI 211.1, ACI 318-14, ACI 302, IR-04, ACI 301-16, ACI 305R-10, ACI 306R-16, ACI 308-16.
- C. ASTM C-94, Specification for Ready-Mixed Concrete.
- D. Concrete Reinforcing Steel Institute (CRSI) Manual of Standard Practice (latest edition).
- E. ASTM – American Society for Testing and Materials.

1.03 SUBMITTALS

- A. Refer to Section 01 33 00.
- B. Manufacturer's Data: Submit list and complete descriptive data of all products proposed for use. Include manufacturer's specifications, published warranty or guarantee, installation instructions, and maintenance instructions.
- C. Materials list: Submit to the Architect a complete list of all materials proposed to be used in this portion of the work. Submitted items should include but are not limited to sand, gravel, admixtures, surface

an approved equal.

T. Adhesive Anchoring (Epoxy): Hilti HIT-HY 200 Safe Set, or approved equal.

2.02 CONCRETE DESIGN AND CLASS

nor the maximum slump is exceeded. In no case shall more than 10 gallons of water shall be added to a full 9 yard load, or 1 gal. per yard on remaining concrete within the drum providing load tag indicates at time of mixing at plant will allow for additional water.

2.04 MATERIALS TESTING

- A. Materials testing of concrete and continuous batch plant inspection may be waived in accordance CBC Sections 1704A.4.4 when approved by Structural Engineer and DSA.
- B. Testing of concrete shall be performed per article 3.12 of this specification.

2.05 EQUIPMENT

- A. Handling and mixing of concrete: Project Inspector may order removal of any equipment which in his opinion is insufficient or in any way unsuitable.

PART 3 - EXECUTION

3.01 APPROVAL OF FORMS AND REINFORCEMENTS

- A. Forms and reinforcements are subject to approval by the Project Inspector, and notice of readiness to place first pour shall be given to DSA, Architect and Structural Engineer 48 hours prior to placement of concrete. Before placing concrete, clean tools, equipment and remove all debris from areas to receive concrete. Clean all reinforcing and other embedded items off all coatings oil, and mud that may impair bond with concrete.
- B. All reinforcing steel shall be adequately supported by approved devices on centers close enough to prevent any sagging.
- C. All reinforcing bar lap splices shall be staggered a minimum of 5 ft.
- D. Additional reinforcing steel shall be placed around all utility boxes, valve boxes, manhole frames and covers that are located within the concrete placements.
 - 1. The bars shall be placed so that there will be a minimum of 1 ½" clearance and a maximum of 3" clearance. The reinforcing steel shall be placed mid-depth of concrete slab.
- E. At all right angles or intersections of concrete walks, additional 2'x2' #5, 90 degree bars shall be added at all inside corners for additional crack control. The bars shall be placed 2" from concrete forms and supports at mid-depth of slab.

3.02 PROTECTION

- A. Protect work and materials of this Section prior to and during installation, and protect the installed work and materials of other trades.
- B. In the event of damage, make all repairs and replacements necessary to the approval of the Architect at

no additional cost to the Owner.

- C. Sub-Grade in vehicular concrete paved areas: Subgrade shall be clean, shaped and compact to hard surface free from elevations or depressions exceeding 0.05' in 10' from true plan. Compact per Section 31 00 00. Compaction and moisture content shall be verified immediately prior to placement of concrete. Proof roll subbase in presence of geotechnical engineer prior to placement of aggregate base.

3.03 CLEANING

- A. Reinforcement and all other embedded items at time of placing concrete to be free of rust, dirt oil or any other coatings that would impair bond to concrete.
- B. Remove all wood chips, sawdust, dirt, loose concrete and other debris just before concrete is to be poured. Use compressed air for inaccessible areas. Remove all standing water from excavations.

3.04 FORMING

- A. Form material shall be straight, true, sound and able to withstand deformation due to loading and effects of moist curing. Materials which have warped or delaminated, or require more than minor patching of contact surfaces, shall not be reused.
- B. Build forms to shapes, lines, grades and dimensions indicated. Construct form work to maintain tolerances required by ACI 301. Forms shall be substantial, tight to prevent leakage of concrete, and properly braced and tied together to maintain position and shape. Butt joints tightly and locate on solid backing. Chamfer corners where indicated. Form bevels, grooves and recesses to neat, straight lines. Construct forms for easy removal without hammering, wedging or prying against concrete.
- C. Space clamps, ties, hangers and other form accessories so that working capacities are not exceeded by loads imposed from concrete or concreting operations.
- D. Build openings into vertical forms at regular intervals if necessary to facilitate concrete placement, and at bottoms of forms to permit cleaning and inspection.
- E. Build in securely braced temporary bulkheads, keyed as required, at planned locations of construction joints.
- F. Slope tie-wires downward to outside of wall.
- G. Brace, anchor and support all cast-in items to prevent displacement or distortion.
- H. During and immediately after concrete placing, tighten forms, posts and shores. Readjust to maintain grades, levels and camber.
- I. Concrete paving, Curbs, Curb and Gutters, Ramps:
 - 1. Expansion Joints: Install at locations indicated, and so that maximum distance between joints is 20' for exterior concrete unless otherwise shown. Expansion joint material shall be full depth of

concrete section. Recess for backer rod and sealant where required. Expansion joints shall not exceed ¼ inch depth measured from finish surface to top of felt or sealant, and ½ inch width.

2. Curbs, Valley Gutter, and Curb & Gutter: Install expansion joints at 60' on center, except when placing adjacent to concrete walks, the expansion joints shall align with the expansion joints shown for the concrete walks. Expansion joint material shall be full depth of concrete section. Recess for backer rod and sealant will be required.
 3. Isolation Joints: 3/8" felt between walls and exterior slabs or walks so that paved areas are isolated from all vertical features, unless specifically noted otherwise on plans.
 4. Exterior Concrete Paving: Install expansion joints at 20' on center maximum, both directions, unless shown otherwise on plans.
 5. Ramps; whether shown or not all ramps shall have control joints and expansion joints.
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- a. Control joints on ramps shall be aligned and be placeeeeeeen a eeeen we th ex l ocs())JJ -238.

the maximum specified tolerances shall be made level by the Contractor at no additional expense to the Owner.

2. Concrete vibrator shall be used to assist concrete placement. Contractor shall have spare concrete vibrator on site during concrete placement.
 - I. Placing in hot weather: Comply with ACI 305R-10. Concrete shall not exceed 85 degrees F at time of placement. Concrete shall be delivered, placed and finished in a sufficiently short period of time to avoid surface dry checking. Concrete shall be kept wet continuously after tempering until implementation of curing compound procedure in accordance with this specification.
 - J. Placing in cold weather: Comply with ACI 306R-16. Protect from frost or freezing. No antifreeze admixtures are permitted. When deposited concrete during freezing or near-freezing weather, mix shall have temperature of at least 50 degrees F but not more than 90 degrees F. Concrete shall be maintained at temperature of at least 50 degrees F for not less than 72 hours after placing or until it has thoroughly hardened. Provide necessary thermal coverings for any flat work exposed to freezing temperatures.
 - K. Horizontal construction joint: Keep exposed concrete face of construction joints continuously moist from time of initial set until placing of concrete; thoroughly clean contact surface by chipping entire surface not earlier than 5 days after initial pour to expose clean hard aggregate solidly embedded, or by approved method that will assure equal bond, such as green cutting. If contact surface becomes contaminated with soil, sawdust or other foreign matter, clean entire surface and re-chip entire surface to assure proper adhesion.

3.09 CONCRETE FINISHES

- A. Concrete Slab Finishing: Finish slab as required by ACI 302.1R. Use manual screeds, vibrating screeds to place concrete level and smooth. Use "jitterbugs" or other special tools designed for the purpose of forcing the coarse aggregate below the surface leaving a thick layer of mortar 1 inch in thickness. Surface shall be free from trowel marks, depressions, ridges or other blemishes. Tolerance for flatness shall be 1/8" in 10'. Provide final finish as follows:
 1. Flatwork, medium broom finish: Typical finish to be used at all exterior walks and stairs.

- C. As directed by Architect, cut out and replace defective concrete. All defective concrete shall be removed from the site. No patching is to be done until surfaces have been examined by Architect and permission to begin patching has been provided.
- D. Permission to patch any area shall not be considered waiver of right, by the Owner, to require removal

- C. Strength tests will be conducted by the Testing Lab on one cylinder at seven (7) days and two cylinders at twenty-eight (28) days. The fourth remaining cylinder will be available for testing at fifty-six (56) days if the 28-day cylinder test results do not meet the required design strength.

SECTION 32 31 13

CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 SUMMARY

A. SECTION INCLUDES

1. Fence framework, fabric, and accessories.
2. Excavation for post bases; concrete foundation for posts.
3. Manual gates and related hardware.

B. RELATED SECTIONS

1. The General Conditions, Supplementary Conditions and Division 1 are fully applicable to this Section, as if repeated herein.
2. Section 08 71 00: Door Hardware.

1.04 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in manufacturing the products specified in this section with minimum three years experience.
- B. Installer: Company specializing in installations of chain-link fencing with a minimum of five years of

- H. Concrete: ASTM C94; Portland Cement, 2,500 p.s.i. strength at 28 days, 3 inch slump; one inch maximum sized coarse aggregate.
- I. Kickplate: 12 ga. Steel hot dipped galvanized.
- J. Cane Bolt Receiver: 1-1/4" x 8" galvanized pipe.

2.02 ACCESSORIES

- A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.
- B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel galvanized.
- C. Gate Hardware: Fork latch with gravity drop mechanical keepers; three 180 degrees gate hinges per

concrete.

- D. Line, Terminal, and Gate Post Footing Depth Below Finish Grade: **(see plan details)**
- E. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail, on bay from end and gate post.

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leaf size without sag.

C. Provide panic hardware at non-vehicular gates.

D. Gate Hardware

1. See drawings for gate elevations and hardware groups.
2. Lever Hardware Kit – LOCINOX USA – LAKQ U2 chain link lock kit. For use at required accessible passage type gates not requiring panic devices.
3. Self-Closing Hinge System – LOCINOX USA – Mammoth-HD 180 Degree Closer and Hinge Kit for gates up to 440 lbs. Opening force shall be less than 5 lbs. For use at all accessible required gates along path of travel or along egress route with panic devices. Provide manufacturer's optional mounting hardware for thicker gate post material.
4. Heavy Duty Hinges: Provide heavy-duty weld hinges of size capable of supporting specified leaf width without sag or failure. Gorilla hinge or equal. For all maintenance type swing gates.

2.04 ACCESSORIES

- A. Rail Attachment Brackets – Monumental Iron Works Pro-Arc swivel bracket with up to 30 degree swivel (up/down/left/right) or approved equal). Bracket to fully encapsulate rail end for complete security that is aesthetically pleasing. Note to Bidder: District has standardized on this specific bracket and requires it to be used regardless of which fence panel manufacture is submitted on. Bid accordingly.
- B. Industrial Drive Rivets: Of sufficient length to attach items in a secure non-rattling position. Rivet to have a minimum of 1100 lbs. (4894 N) holding power and a shear strength of 1500 lbs. (6674 N).
- C. Ornamental Picket Fence Accessories: Provide indicated items required to complete fence system. Galvanize each ferrous metal item in accordance with ASTM B695 and finish to match framing.
- D. Post Caps: Formed steel, cast of malleable iron or aluminum alloy, weathertight closure cap. Provide one flat style post cap for each post.
- E. Picket Tops: Flat top with polymer plug.
- F. Hinges: Provide heavy-duty weld hinges of size capable of supporting specified leaf width without sag or failure. Gorilla hinge or equal.
- G. Locking Clasps: Provide heavy-duty hardware to receive padlock at location where gate leaves meet each other or strike post.
- H. Padlocks: Padlocks are provided by District. See ord Dadlock Dualdioy

- I. Cane Bolt: Provide heavy-duty cane bolt at all 2-leaf gate configurations. Provide at each leaf to secure each leaf into pavement below. Cane bolt shall be capable of being raised and locked in the retracted position when not in use. Provide 12 inch galvanized sleeve receivers encased with 12 inch round concrete in the close and open position. Cane bolts to freely drop and lift in the closed and open position.
- J. Knox Box: Model 3200 series, black. Fully weld to gate frame. Prime and paint affected finish. Location and quantity as shown on drawings. Boxes located at frontage of school shall have a reflective red adhesive sticker on front of lock body. Boxes located at other locations not on main school frontage shall have a reflective green adhesive sticker on front of lock body.
- K. Knox Locks: Model 3700 series, stainless steel, exterior use. Provide at all maintenance gates and fire apparatus gates along fire lane. All locks shall have a reflective green adhesive sticker around lock body.

2.05 SETTING MATERIAL

- A. Concrete: Minimum 28-day compressive strength of 3,000 psi.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify areas to receive fencing are completed to final grades and elevations.
- B. Ensure property lines and legal boundaries of work are clearly established.

3.02 INSTALLATION

- A. Install fence in accordance with manufacturer's instructions.
- B. Space posts uniformly not to exceed a full panel width. Face of post to closest picket not to exceed 3-7/8 inch spacing.
- C. Concrete Fence Set Posts: 24" min. Ø x36" min. deep or as otherwise indicated on drawings.
- D. Concrete Gate Swing Posts: Provide reinforced concrete footings as indicated on the Drawings.
- E. Check each post for vertical and top alignment and maintain in position during placement and finishing operation.

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- H. Where touch up paint is necessary, paint shall match powder coated finish. Unacceptable finishes will require re-powder coating.
- I. Cutting of manufacturer's brackets will not be accepted.

3.03 GATE INSTALLATION

- A. Install gates plumb, level and secure for full opening without interference.
- B. Attach hardware by means, which will prevent unauthorized removal.
- C. Adjust hardware for smol