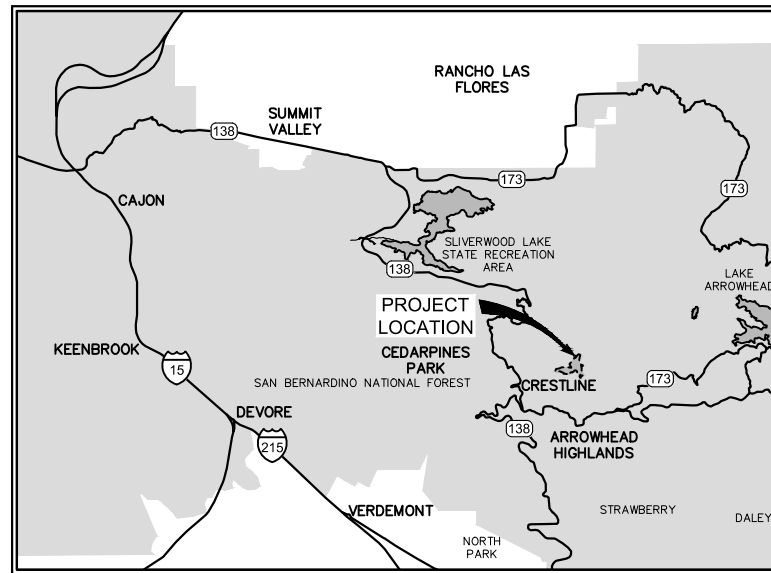
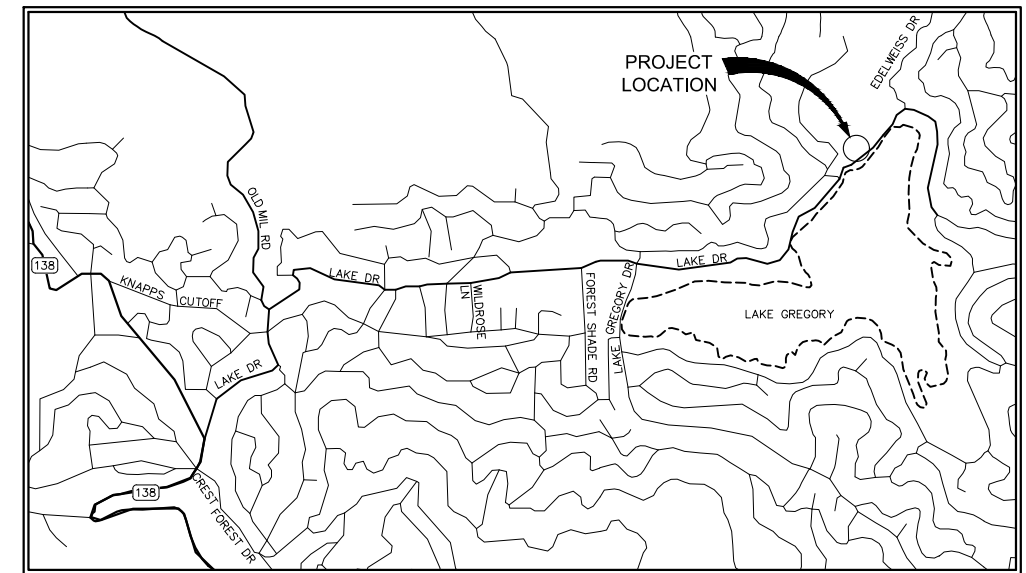


Crestline Sanitation District

CONSTRUCTION PLANS FOR HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS



VICINITY MAP
NOT TO SCALE



LOCATION MAP
NOT TO SCALE

PROJECT ADDRESS
24516 LAKE DR
CRESTLINE, CA. 92352

DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSIONS CODE AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CRESTLINE SANITATION DISTRICT IS CONFINED TO REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR PROJECT DESIGN.

DUDEK 605 THIRD ST ENCINITAS, CA. 92024

PHILLIP J. GIORI R.C.E. 87516 DATE
EXPIRES 9/30/2019

APPROVED:

CRESTLINE SANITATION DISTRICT DATE

DIG ALERT



CALL TOLL FREE
1-800-227-2600

TWO
WORKING DAYS
BEFORE YOU
DIG

Underground Service Alert
of Southern California

CONTACT INFORMATION

CRESTLINE SANITATION DISTRICT	RICK DEVER	(909) 338-1751
DUDEK	PHILL GIORI	(760) 479-4173
SOUTHERN CALIFORNIA EDISON (SCE)	KIM GURULE	(714) 769-9932
CALIFORNIA STATE PARKS	ROBERT SCHOLFIELD	(949) 426-1715
CALTRANS	IMAN BESHAY	(909) 338-7058
FRONTIER	DESIREE SERRANO	(909) 748-6640

PROGRESS: PDR SUBMITTAL
SUBMITTAL DATE: xx/xx/19

PROJECT MANAGER: P. GIORI
DESIGNED BY: P. GIORI
DRAWN BY: N. HUNTER
CHECKED BY: N. HARPER



PLANS PREPARED BY:
DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.632.0164



Crestline
Sanitation District
24516 Lake Drive, (P.O. Box 3395)
Crestline, California 92325-3395
909.338.1751 Fax 909.338.5306

CRESTLINE SANITATION DISTRICT
**HUSTON CREEK WWTP PRIMARY CLARIFIER
AND DEWATERING BUILDING IMPROVEMENTS**

TITLE SHEET, LOCATION MAP,
VICINITY MAP, SHEET INDEX

G-1

PROJECT NO.
11652

DWG. NO. 1 OF 114

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

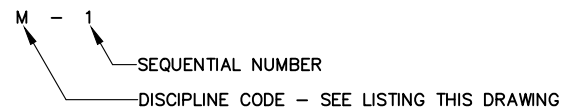
GENERAL NOTES

1. ALL WORK SHALL BE DONE IN CONFORMANCE WITH THESE PLANS AND TECHNICAL SPECIFICATIONS.
2. THE CONTRACTOR SHALL GUARANTEE ALL WORK FOR A PERIOD OF ONE YEAR AFTER THE DATE OF FINAL ACCEPTANCE BY THE DISTRICT. ANY WORK THAT MAY PROVE DEFECTIVE IN WORKMANSHIP AND/OR MATERIALS WITHIN THE WARRANTY PERIOD SHALL BE REPAIRED OR REPLACED ALONG WITH ANY OTHER WORK WHICH MAY BE DAMAGED OR DISPLACED DURING THE PERFORMANCE OF WARRANTY WORK WITH NO ADDITIONAL EXPENSE TO THE DISTRICT.
3. **EXISTING FACILITIES:**
 - A. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (USA, 1-800-227-2600) AT LEAST TWO WORKING DAYS PRIOR TO COMMENCING WORK.
 - B. OWNERS OF NON-PRESSURE CONDUITS ARE NOT REQUIRED TO BE MEMBERS OF USA. THEREFORE, IN ADDITION TO CONTACTING USA, THE CONTRACTOR SHALL CONTACT ALL OWNERS OF NON-PRESSURE CONDUITS (I.E. STORM DRAINS AND GRAVITY SEWERS, AGRICULTURAL DRAIN PIPELINES, AND IRRIGATION PIPELINES) AND COORDINATE MARK-OUT SO AS TO NOT INTERFERE WITH THE PROGRESS OF THE WORK.
 - C. THE EXISTENCE AND LOCATION OF EXISTING UNDERGROUND FACILITIES SHOWN ON THE PLANS ARE APPROXIMATE AND WERE OBTAINED BY A SEARCH OF RECORDS MADE AVAILABLE BY THE OWNERS OF THE FACILITIES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT IN PLACE OR REPAIR IMMEDIATELY ANY AND ALL UNDERGROUND FACILITIES ENCOUNTERED DURING THE COURSE OF THE WORK. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT ANY EXISTING FACILITY SHOWN HEREON AND ANY OTHER WHICH IS NOT OF RECORD OR NOT SHOWN ON THE DRAWINGS.
 - D. LOCATION AND ELEVATION OF IMPROVEMENTS TO BE MET BY THE WORK OF THIS CONTRACT SHALL BE CONFIRMED BY FIELD MEASUREMENTS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL MAKE EXPLORATORY EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES AT LEAST ONE WEEK IN ADVANCE OF CONSTRUCTION TO ALLOW REVISIONS TO THESE PLANS, IF NECESSARY DUE TO ACTUAL LOCATION OF THE EXISTING FACILITIES.
 - E. CONTRACTOR SHALL EXERCISE DUE CARE TO AVOID INJURY TO EXISTING IMPROVEMENTS, FACILITIES, AND ADJACENT PROPERTIES INCLUDING, BUT NOT LIMITED TO, LANDSCAPING, TREES, SHRUBBERY, HARDSCAPE, FENCES, WALLS, ETC. WHICH ARE NOT TO BE REMOVED. CONTRACTOR SHALL REPAIR OR REPLACE ANY DAMAGED PROPERTY AT NO ADDITIONAL COST TO THE DISTRICT.
5. **SAFETY:**
 - A. CONTRACTOR SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT IS NOT LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY, AND HOLD THE DISTRICT AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED IN CONNECTION WITH THE PERFORMANCE OF THIS WORK, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE DISTRICT OR THE ENGINEER.
 - B. CONTRACTOR SHALL COMPLY WITH THE REGULATIONS OF THE "GENERAL CONSTRUCTION SAFETY ORDERS", "TRENCH CONSTRUCTION SAFETY ORDERS" AND OTHER APPLICABLE ORDERS OF THE STATE OF CALIFORNIA, DEPARTMENT OF INDUSTRIAL RELATIONS, DIVISION OF OCCUPATIONAL HEALTH AND SAFETY (CAL-OSHA). CONTRACTOR SHALL PRESENT EVIDENCE OF COMPLIANCE INCLUDING PERMITS FOR TRENCHING OVER FIVE FEET IN DEPTH TO THE DISTRICT PRIOR TO CONSTRUCTION.
6. **TESTING - CONTRACTOR RESPONSIBILITY:**
 - A. CONTRACTOR SHALL BE RESPONSIBLE FOR DEMONSTRATING CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS.
 - B. CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, AND EQUIPMENT NECESSARY TO PRESSURE TEST PIPELINE AND APPURTENANCES IN ACCORDANCE WITH THE PROJECT TECHNICAL SPECIFICATIONS. TEST PRESSURE SHALL BE 150 PSI. AT NO TIME SHALL THE TEST PRESSURE EXCEED THE PRESSURE RATING OF THE PIPE.

GENERAL NOTES CONTINUED

- C. CONTRACTOR SHALL PROVIDE ALL NECESSARY LABOR, MATERIAL AND EQUIPMENT, AT NO EXPENSE TO THE DISTRICT AND FURNISH MATERIAL SAMPLES AS REQUIRED BY THE DISTRICT'S INSPECTOR TO PERFORM MATERIAL TESTING IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
 - D. CONTRACTOR SHALL FURNISH A MATERIAL TESTING FIRM TO PERFORM INITIAL SOIL COMPACTION TESTING DURING TRENCH BACKFILL.
 - E. CONTRACTOR SHALL FURNISH A MATERIAL TESTING FIRM TO INSPECT AND PERFORM INITIAL TESTS ON CONCRETE PLACED ON THE PROJECT SITE. PRE-CAST CONCRETE SHALL BE TESTED AND CERTIFIED BY THE MANUFACTURER.
 - F. CONTRACTOR SHALL BE RESPONSIBLE FOR ANY RE-TESTING DUE TO FAILED TESTS OR FOR RE-WORK DUE TO CONTRACTOR REPLACEMENT OR REPAIR OF DEFECTIVE WORKMANSHIP OR MATERIALS. COSTS FOR RE-TESTING AND ADMINISTRATIVE COSTS WILL BE DEDUCTED FROM THE CONTRACTOR'S PROGRESS PAYMENT.
7. THE CONTRACTOR SHALL KEEP ALL CONSTRUCTION ACTIVITIES WITHIN PUBLIC RIGHT-OF-WAY AND EASEMENTS INDICATED ON THE PLANS. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, VEHICLES AND EQUIPMENT, TRENCH EXCAVATIONS AND EXCAVATED MATERIALS, AND PIPELINE AND APPURTENANCE MATERIALS. IF THE CONTRACTOR REQUIRES ADDITIONAL CONSTRUCTION EASEMENTS, IT SHALL BE SOLELY THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN SUCH EASEMENTS OR AGREEMENTS FROM THE RESPECTIVE PROPERTY OWNERS WITH NO ADDITIONAL COMPENSATION FROM THE DISTRICT.
8. **AS-BUILT DRAWINGS:**
- C. THE CONTRACTOR SHALL MAINTAIN CURRENT BLACKLINE DRAWINGS DURING CONSTRUCTION NEATLY MARKED IN RED INK TO REFLECT THE AS-BUILT CONDITIONS. CONTRACTOR SHALL MAKE UPDATES TO THE AS-BUILT DRAWINGS ON A DAILY BASIS. AS-BUILT DOCUMENTS SHALL BE MAINTAINED ON SITE AT ALL TIMES.
 - D. AS-BUILT DRAWINGS SHALL INCLUDE BUT NOT BE LIMITED TO ANY DEVIATION FROM PLANS INCLUDING PIPELINE LINE AND GRADE AND SUB-GRADE UTILITY LOCATIONS AND SIZE.
 - E. CURRENT AS-BUILT DRAWINGS SHALL BE A CONDITION OF MONTHLY PROGRESS PAYMENT. CONTRACTOR SHALL REVIEW AS-BUILT DRAWINGS WITH THE DISTRICT PRIOR TO SUBMITTING PROGRESS PAYMENT REQUEST.
 - F. AS-BUILT DRAWINGS SHALL BE SUBMITTED TO THE DISTRICT FOR APPROVAL PRIOR TO RELEASE OF RETENTION.

DRAWING NUMBERING SYSTEM



DISCIPLINE CODE

- G GENERAL
- D DEMO
- C CIVIL
- A ARCHITECTURAL
- S STRUCTURAL
- M MECHANICAL
- E ELECTRICAL
- I PROCESS AND INSTRUMENTATION

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* 8	G-8	PHASING PLAN - 1
* 9	D-1	SITE AND KEY PLAN
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* NOT A PART OF THIS SUBMITTAL

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PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

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PROGRESS:	PDR SUBMITTAL
SUBMITTAL DATE:	xx/xx/19
PROJECT MANAGER:	P. GIORI
DESIGNED BY:	P. GIORI
DRAWN BY:	N. HUNTER
CHECKED BY:	N. HARPER



PLANS PREPARED BY:

DUDEK

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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS

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G-2

PROJECT NO.
11652

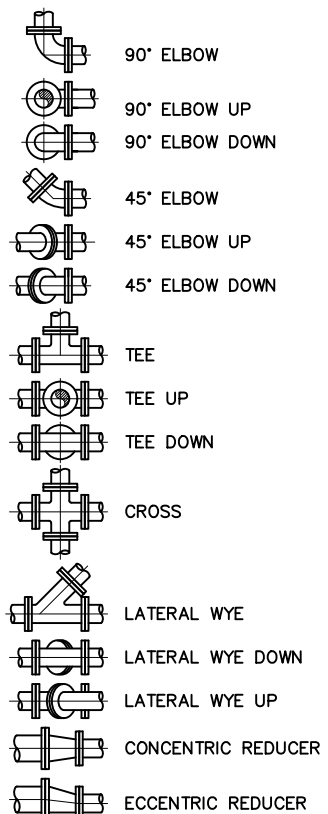
DWG. NO. 2 OF 114

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

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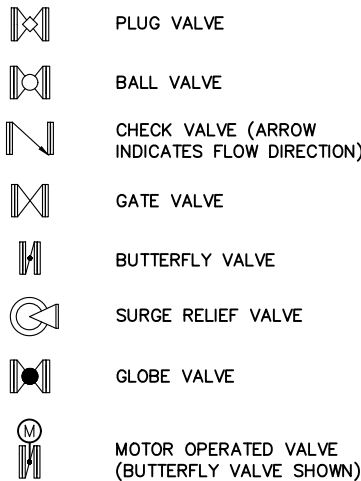
FITTING SYMBOLS

FITTINGS SHOWN WITH FLANGED JOINTS

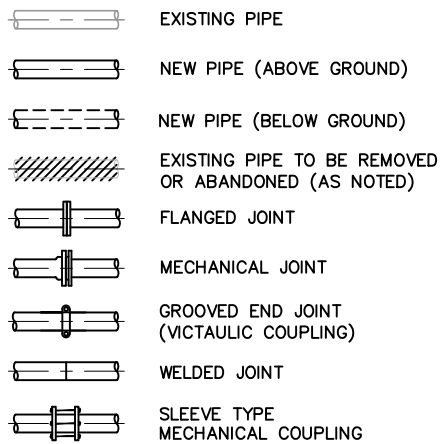


VALVE SYMBOLS

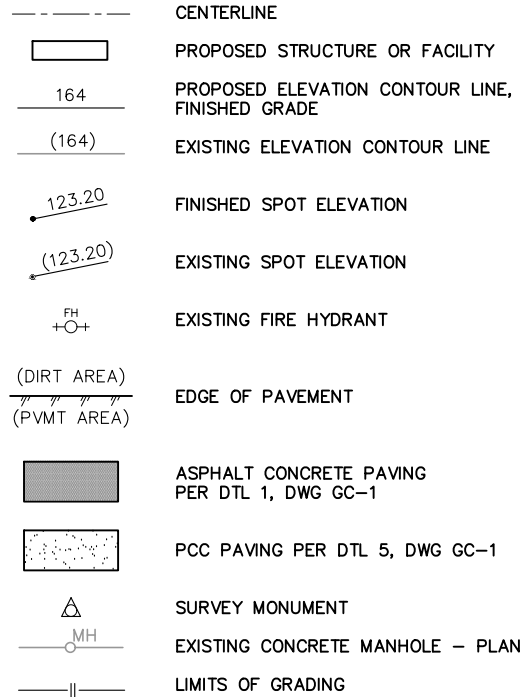
VALVES SHOWN WITH FLANGED JOINTS



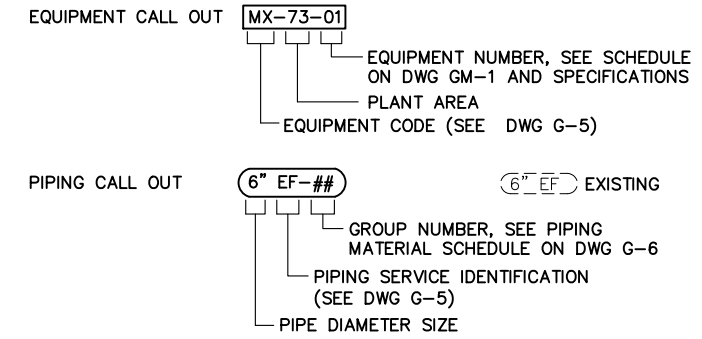
PIPING SYMBOLS



LEGEND

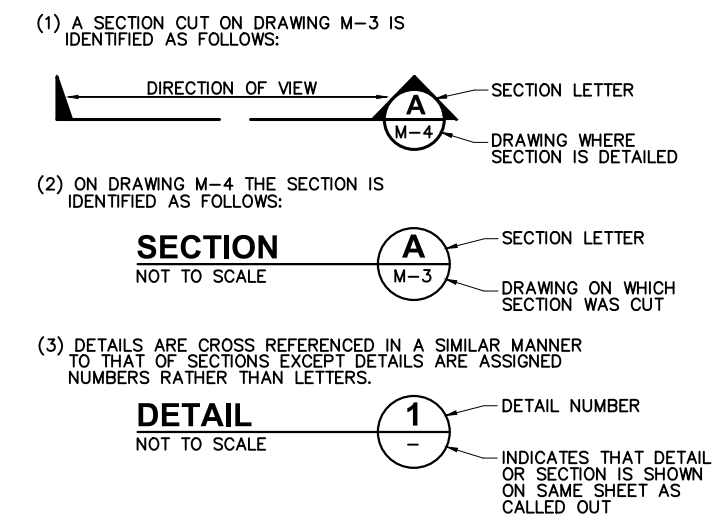


PIPE AND EQUIPMENT DESIGNATION

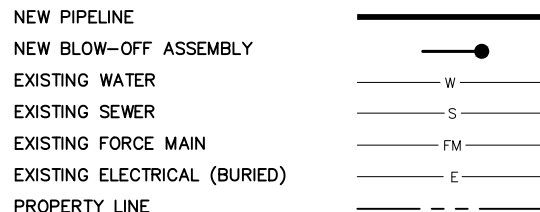


CHANGE IN PIPING MATERIAL

CROSS REFERENCING SYSTEM



CIVIL LEGEND



PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

PROGRESS:	PDR SUBMITTAL
SUBMITTAL DATE:	xx/xx/19
PROJECT MANAGER:	P. GIORI
DESIGNED BY:	P. GIORI
DRAWN BY:	N. HUNTER
CHECKED BY:	N. HARPER



PLANS PREPARED BY:
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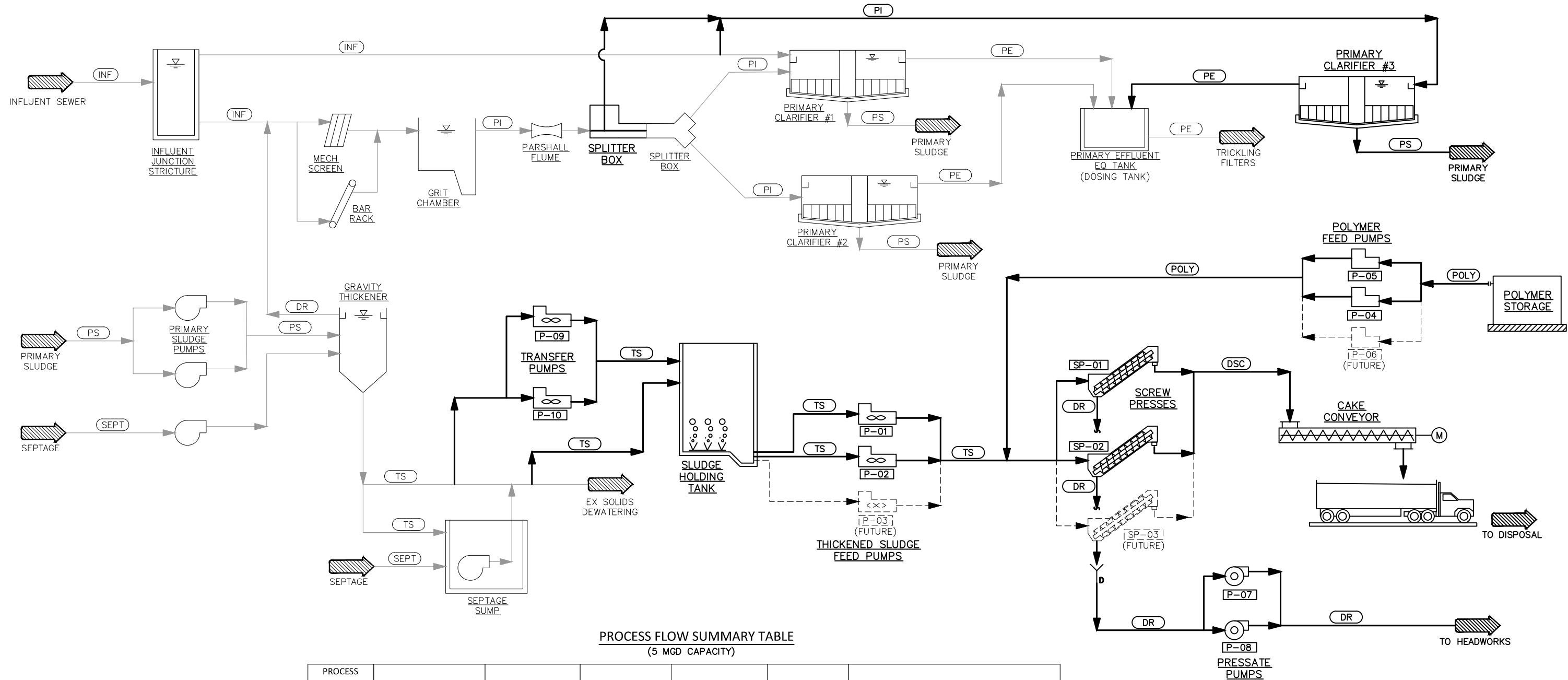
CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS

G-4
PROJECT NO.
11652
DWG. NO. 4 OF 114

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

SYMBOLS

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PROCESS FLOW SUMMARY TABLE
(5 MGD CAPACITY)

PROCESS ABBREVIATION	DESCRIPTION	CONCENTRATION	AVERAGE FLOW	INSTANTANEOUS FLOW	PRESSURE	NOTES
INF	INFLUENT WASTEWATER	260 MG/L TSS	0.7 MGD	1389 GPM	GRAVITY PSI	INFLUENT SEWER
PI	PRIMARY INFLUENT	260 MG/L TSS	0.7 MGD	1389 GPM	GRAVITY PSI	HEADWORKS TO PRIMARY CLARIFIERS
PE	PRIMARY EFFLUENT	60 MG/L TSS	0.7 MGD	1389 GPM	GRAVITY PSI	PRIMARY CLARIFIERS TO TRICKLING FILTERS
PS	PRIMARY SLUDGE	2 %DS	9,000 GPD	TBD GPM	TBD PSI	PRIMARY CLARIFIERS TO GRAVITY THICKENER
SC	SCUM	TBD %DS	- GPD	TBD GPM	GRAVITY PSI	PRIMARY CLARIFIERS TO GRAVITY THICKENER
TFS	TRICKLING FILTER SLUDGE	0.3 %DS	TBD GPD	TBD GPM	TBD PSI	SECONDARY CLARIFIERS TO GRAVITY THICKENER
SEPT	SEPTAGE	TBD %DS	- GPD	TBD GPM	TBD PSI	SEPTAGE RECEIVING TO GRAVITY THICKENER
TS	THICKENED SLUDGE	3 %DS	38,400 GAL/WK	15-25 GPM	TBD PSI	GT TO SLUDGE HOLDING TANK TO DEWATERING
DSC	DEWATERED SLUDGE CAKE	25-35 %DS	13,300 DRY-LBS/WK	833 DRY-LBS/HR	N/A	CONVEYOR TO LOADING TRUCK
NPOLY	NEAT EMULSION POLYMER	40 % ACTIVE	45 GAL/WK	2.6 GPH	TBD PSI	POLYMER STORAGE TO POLYMER SYSTEM
W	POTABLE WATER	-	- GAL/WK	18 GPM	TBD PSI	POTABLE WATER
POLY	MADE-DOWN POLYMER	0.0025 lb/lb	- GAL/WK	18 GPM	TBD PSI	POLYMER SYSTEM TO SCREW PRESS FEED LINE
WW	WASH WATER	-	- GPD	135 GPM	75 PSI	SCREW PRESS WASHWATER
A	AIR	-	- SCFM	1.2 SCFM	87 PSI	SCREW PRESS
DR	DRAINAGE	650 MG/L TSS	87,000 GAL/WK	150 GPM	TBD PSI	DRAINAGE RETURN TO HEADWORKS

PRELIMINARY DESIGN
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PROGRESS: PDR SUBMITTAL
SUBMITTAL DATE: xx/xx/19
PROJECT MANAGER: P. GIORI
DESIGNED BY: P. GIORI
DRAWN BY: N. HUNTER
CHECKED BY: N. HARPER



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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
PROCESS FLOW DIAGRAM

G-5
PROJECT NO. 11652
DWG. NO. 5 OF 114

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

DESIGN CRITERIA

PARAMETER	UNITS	CURRENT	FUTURE
INFLUENT LOADING CRITERIA			
HUSTON CREEK AVERAGE DAILY FLOWRATE (ADF)	MGD	0.5	0.7
SEELEY CREEK AVERAGE DAILY FLOWRATE (ADF)	MGD	0.17	0.5
COMBINED FLOWRATE (ADF)	MGD	0.67	1.2
PRIMARY CLARIFICATION			
NUMBER	TOTAL (DUTY + STDBY)	3 (1 + 2)	3 (1 + 2)
DIAMETER	FT	38 / 26	38 / 26
SIDE WATER DEPTH	FT	14 / 8.5	14 / 8.5
PRIMARY SLUDGE CONCENTRATION	%	1.2	1.2
PRIMARY SLUDGE GENERATION	GPD	9,000	13,000
SLUDGE PRODUCTION			
SOLIDS GENERATION, NORMALIZED AVERAGE ANNUAL	DRY-TONS/YR/MGD	309	309
SOLIDS GENERATION, AVERAGE MONTH	DRY-TONS/MONTH	17.3	30.9
THICKENED SLUDGE CONCENTRATION	% DRY SOLIDS	3 - 4	3 - 4
THICKENED SLUDGE HOLDING TANK			
VOLUME	GALLONS	55,000	55,000
DEWATERING SCREW PRESSES			
NUMBER	TOTAL (DUTY + STDBY)	2 (2 + 0)	3 (3 + 0)
OPERATING TIME, EACH DUTY UNIT	HRS / WK	16	16
INST. MASS SLUDGE FEED RATE, EACH DUTY UNIT	DRY-LB/HR	300	300
INST. VOLUMETRIC SLUDGE FEED RATE, EACH DUTY UNIT	GPM	15 - 25	15 - 25
CAKE CONCENTRATION, RANGE	% DRY SOLIDS	18 - 35*	18 - 35*
SOLIDS CAPTURE, MINIMUM	%	95*	95*
POLYMER DOSAGE, RANGE	ACTIVE-LBS / DRY TON	15 - 25*	15 - 25*
INST. WASHWATER DEMAND, EACH DUTY UNIT	GPM @ PSI	45 @ 73	45 @ 73
AIR FLOWRATE, EACH DUTY UNIT	SCFM @ PSI	0.4 @ 87	0.4 @ 87
ODOR CONTROL, BIOFILTER			
AIR FLOW RATE	SCFM @ IN-H ₂ O	740 @ 10	740 @ 10
MINIMUM EMPTY BED RESIDENCE TIME	SEC	20	20
MINIMUM VOLUME	FT ³	250	250
REMOVAL EFFICIENCY	% H ₂ S	> 99%	> 99%
THICKENED SLUDGE TRANSFER PUMPS			
NUMBER	TOTAL (DUTY + STDBY)	2 (1 + 1)	2 (1 + 1)
TYPE	PROGRESSIVE CAVITY	-	-
FLOW RATE	GPM	20 - 40	20 - 40
PRESSURE	PSI	TBD	TBD
THICKENED SLUDGE FEED PUMPS			
NUMBER	TOTAL (DUTY + STDBY)	2 (2 + 0)	3 (3 + 0)
TYPE	PROGRESSIVE CAVITY	-	-
FLOW RATE	GPM	15 - 25	15 - 25
PRESSURE	FT	70	70
PRESSATE PUMPS			
NUMBER	TOTAL (DUTY + STDBY)	2 (1 + 1)	2 (1 + 1)
TYPE	SUBMERSIBLE / CENTRIFUGAL	-	-
FLOW RATE	GPM	150	150
PRESSURE	FT	34	34
TRICKLING FILTER RECIRCULATION PUMPS			
NUMBER	TOTAL (DUTY + STDBY)	2 (1 + 1)	2 (1 + 1)
TYPE	CENTRIFUGAL	-	-
FLOW RATE	GPM	860	860
PRESSURE	FT	30	30

NOTES
 * INDICATES PARAMETER TO BE VERIFIED BY PILOT OR BENCH TESTING

PRELIMINARY DESIGN
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PROGRESS:	PDR SUBMITTAL
SUBMITTAL DATE:	xx/xx/19
PROJECT MANAGER:	P. GIORI
DESIGNED BY:	P. GIORI
DRAWN BY:	N. HUNTER
CHECKED BY:	N. HARPER



PLANS PREPARED BY:
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 760.942.5147 Fax 760.632.0164



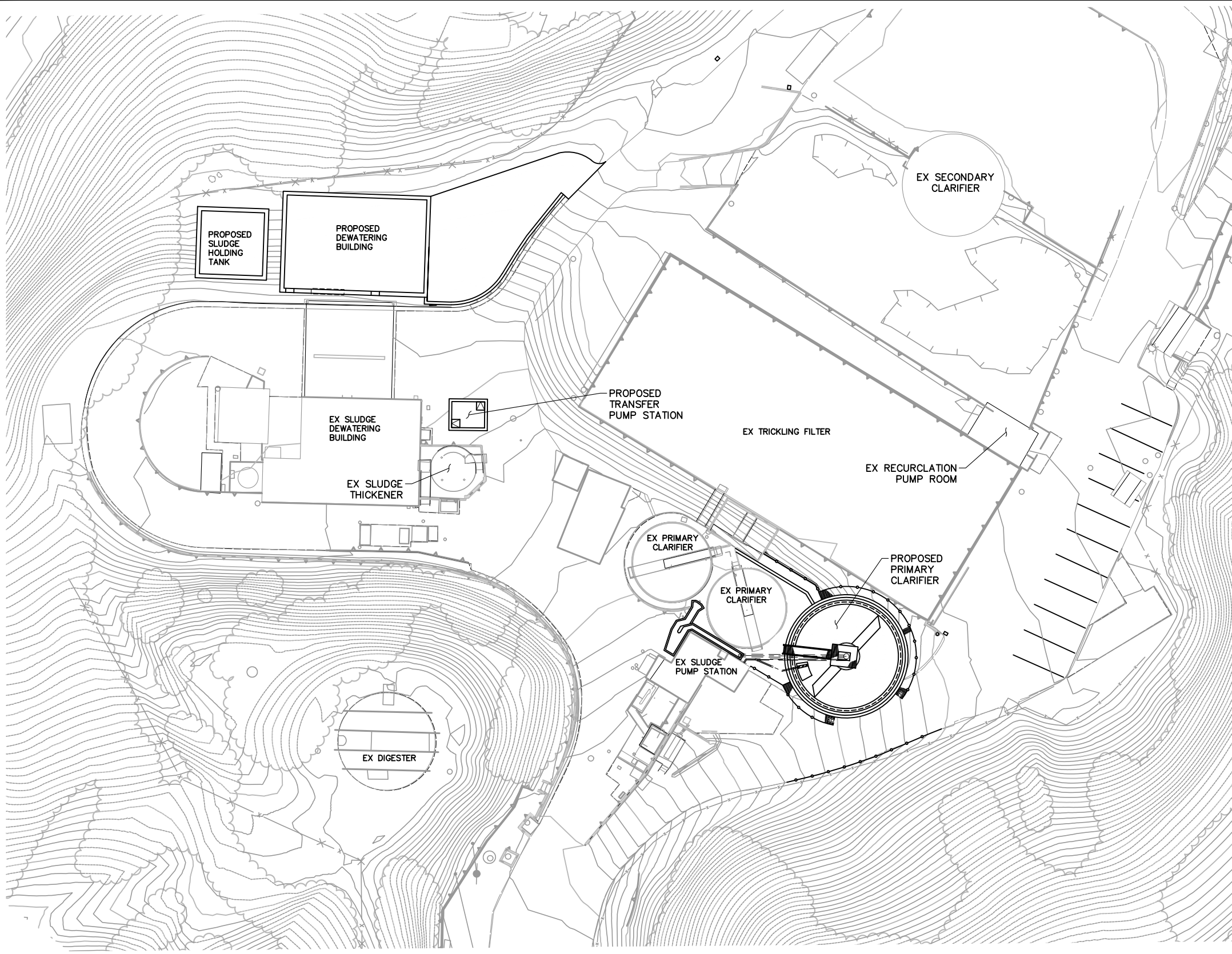
Crestline Sanitation District
 24516 Lake Drive, (P.O. Box 3395)
 Crestline, California 92325-3395
 909.338.1751 Fax 909.338.5306

CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
 DESIGN CRITERIA AND HYDRAULIC PROFILE

G-6
 PROJECT NO.
 11652
 DWG. NO. 6 OF 114

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

P:\01\Engineering\Crestline SD\11652 - Huston Creek Dewatering Bldg\06\CAD\11652 SHXX C-1 7/29/2019 2:51 PM



PLAN
SCALE: 1" = 20'



GRAPHIC SCALE
0 20' 40'
SCALE: 1" = 20'

PRELIMINARY DESIGN
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REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS: PDR SUBMITTAL
 SUBMITTAL DATE: xx/xx/19
 PROJECT MANAGER: P. GIORI
 DESIGNED BY: P. GIORI
 DRAWN BY: N. HUNTER
 CHECKED BY: N. HARPER



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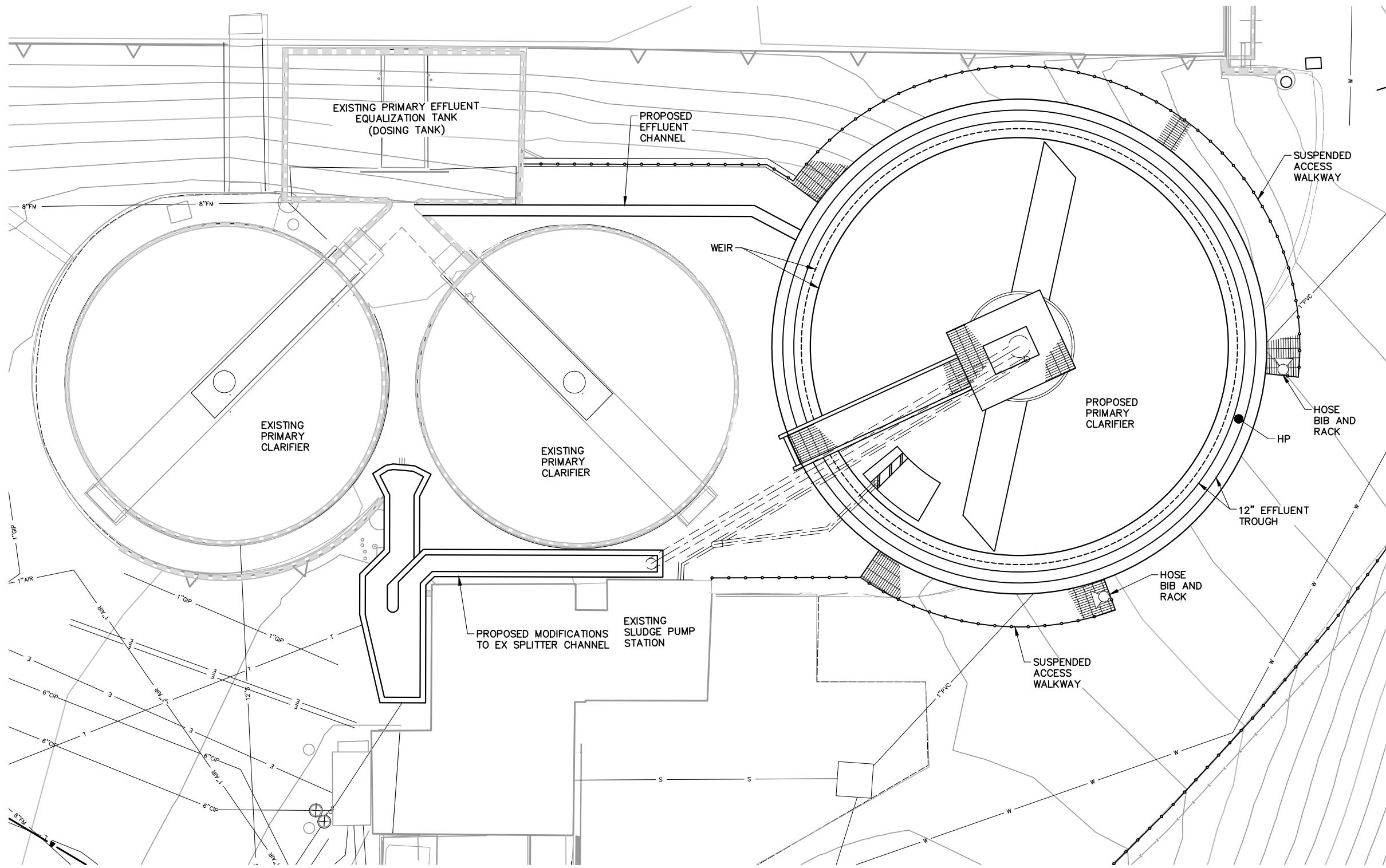


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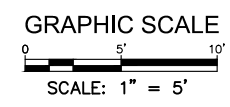
CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
 OVERALL SITE PLAN AND CONTRACTOR STAGING AREA

C-1
 PROJECT NO. 11652
 DWG. NO. 15 OF 114

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PLAN
SCALE: 1"=5'



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REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS: PDR SUBMITTAL
 SUBMITTAL DATE: xx/xx/19
 PROJECT MANAGER: P. GIORI
 DESIGNED BY: P. GIORI
 DRAWN BY: N. HUNTER
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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
 PRIMARY CLARIFIER GRADING PLAN

C-4
 PROJECT NO. 11652
 DWG. NO. 18 OF 114

LIFE SAFETY CODE SUMMARY				
OCCUPANCY CLASSIFICATIONS				
ROOM/USE DESCRIPTION			2016 CBC CLASSIFICATION	
PUMP STATION			USE GROUP S-1	
OCCUPANT LOAD ANALYSIS				
LEVEL	ROOM NAME	FLOOR AREA (SQUARE FEET)	OCCUPANT LOAD FACTOR (CBC TABLE 1004.1.1)	OCCUPANT LOAD (OCCUPANTS)
UPPER	ELECTRICAL	372	300 GROSS	1
	TOILET	115	100 GROSS	1
LOWER	PUMP ROOM	867	300 GROSS	3
	STORAGE	833	300 GROSS	3
TOTAL BUILDING OCCUPANT LOAD				8
EGRESS SYSTEM COMPONENTS				
EXITING COMPONENT		REQUIREMENT	PROVIDED	
NUMBER OF EXITS (CBC TABLE 1006.3.1)		1	2	
TRAVEL DISTANCE (CBC TABLE 1006.2.1)		100 FEET	92'-0" MAX.	
COMMON PATH OF TRAVEL (CBC SECTION 1006.3.2(2))		100 FEET	92'-0" MAX.	
MAXIMUM DEAD END LENGTH (CBC SECTION 1018.4)		20 FEET	0 FEET	
CLEAR DOOR WIDTH (CBC SECTION 1010.1.1)		32 INCHES	32 INCHES	
EXIT ACCESS TRAVEL DISTANCE WITHOUT SPRINKLER SYSTEM (CBC TABLE 1017.2)		200 FEET	92'-0" MAX.	
EXIT DISCHARGE		EXITS SHALL TERMINATE DIRECTLY AT A PUBLIC WAY OR AT AN EXTERIOR EXIT DISCHARGE	EXITS TERMINATE DIRECTLY AT A PUBLIC WAY OR AT AN EXTERIOR EXIT DISCHARGE	
WALL AND CEILING FINISH (CBC TABLE 803.9)				
COMPONENT	MINIMUM REQUIRED CLASSIFICATION	PROVIDED CLASSIFICATION	FLAME SPREAD INDEX	SMOKE DEVELOPMENT INDEX
ROOMS & ENCLOSED SPACES	C	C	76-200	0-450

BUILDING CODE SUMMARY		
BUILDING OCCUPANCIES (2016 CBC CHAPTER 3)		
DESCRIPTION OF USE	CBC CLASSIFICATION	
VALVE STATION	S-1	
BUILDING ELEMENT		
STRUCTURAL FRAME (CBC TABLE 601)	REQUIRED FIRE RESISTANCE RATING	PROVIDED FIRE RESISTANCE RATING
BEARING WALLS (EXTERIOR) (CBC TABLE 601)	0-HOUR	0-HOUR
BEARING WALLS (INTERIOR) (CBC TABLE 601)	0-HOUR	0-HOUR
NONBEARING WALLS (EXTERIOR) (CBC TABLE 602)	0-HOUR	0-HOUR
UNPROTECTED EXTERIOR OPENINGS (CBC TABLE 705.8)	NO LIMIT	NOT LIMITED
NONBEARING WALLS (INTERIOR) (CBC TABLE 601)	0-HOUR	0-HOUR
FLOOR AND SUPPORTING CONSTRUCTION (CBC SECTION 711.3)	0-HOUR	0-HOUR
ROOF CONSTRUCTION (CBC TABLE 601)	0-HOUR	0-HOUR
AREA SEPARATION (CBC SECTION 508.4)	NOT REQUIRED	NONE
HEIGHT AND AREA CALCULATIONS		
CONSTRUCTION TYPE		II-B
REQUIREMENT/DETAILS		VALUES
FLOOR AREA		
AREA PER STORY (CBC TABLE 506.2)- NS : NO SPRINKLER	17,500 SQUARE FEET	
FRONTAGE INCREASE (CBC SECTION 506.3)	NOT NEEDED	
FIRE SPRINKLER INCREASE (CBC SECTION 507.4)	NOT NEEDED	
MAXIMUM ALLOWABLE FLOOR AREA	17,500 SQUARE FEET	
ACTUAL MAXIMUM FLOOR AREA	2,187 SQUARE FEET	
BUILDING HEIGHT		
TABULAR BUILDING HEIGHT (CBC TABLE 504.3)- NO SPRINKLER	55 FEET	
AUTOMATIC SPRINKLER SYSTEM INCREASE (CBC SECTION 504.4)	NOT NEEDED	
TOTAL BUILDING HEIGHT ALLOWED (CBC SECTION 504.3)	1 STORIES	
ACTUAL BUILDING HEIGHT	40'-2"	
NUMBER OF STORIES		
TABULAR BUILDING HEIGHT (CBC TABLE 504.4)	1 STORIES	
AUTOMATIC SPRINKLER SYSTEM INCREASE (CBC SECTION 504.4)	NOT REQUIRED	
TOTAL BUILDING HEIGHT ALLOWED (CBC SECTION 504.4)	1 STORIES	
ACTUAL BUILDING HEIGHT	1 STORIES	

LEGEND

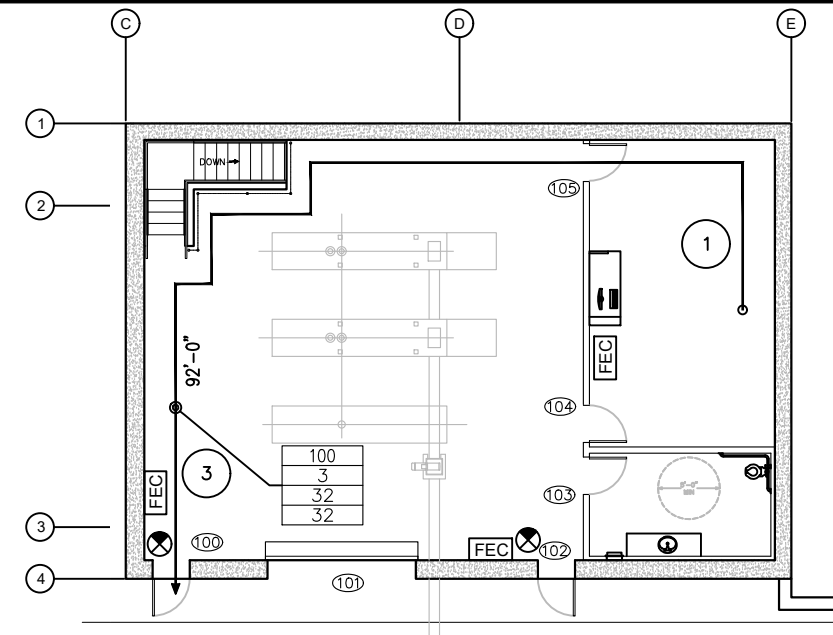
- X — DOOR OR STAIR
- X — OCCUPANT LOAD
- X — REQUIRED WIDTH
- X — PROVIDED WIDTH

- (X) — OCCUPANT LOAD
- FEC — SURFACE MOUNT FIRE EXTINGUISHER CABINET WITH 10 LB. FIRE EXTINGUISHER
- ⊗ — SEMI-RECESSED FIRE EXTINGUISHER
- ⊗ — EXIT SIGN
- 0'-0" → — FARTHEST TRAVEL DISTANCE TO EXIT ACCESS

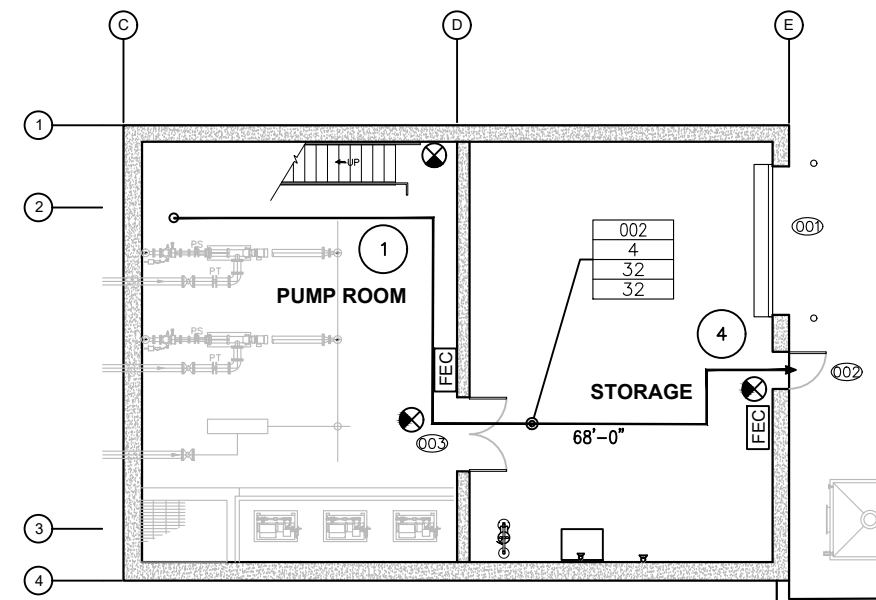
GENERAL NOTES

THE MEANS OF EGRESS, INCLUDING THE EXIT DISCHARGE, SHALL BE ILLUMINATED TO A LEVEL OF NOT LESS THAN ONE FOOT-CANDELA AT THE SURFACE AT ALL TIMES THE BUILDING SPACE SERVED BY THE MEANS OF EGRESS IS OCCUPIED. (CBC 1006.1, 1006.2)

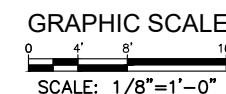
EXIT SIGNS SHALL BE INTERNALLY OR EXTERNALLY ILLUMINATED AT ALL TIMES. EXTERNALLY ILLUMINATED EXITS SHALL BE CONNECTED TO AN EMERGENCY POWER SYSTEM (BATTERIES, UNIT EQUIPMENT OR AN ON-SITE GENERATOR) THAT WILL AUTOMATICALLY ILLUMINATE THE EXIT SIGNS FOR A DURATION OF NOT LESS THAN 90 MINUTES IN CASE OF PRIMARY POWER LOSS. (CBC 1011)



LIFE SAFETY PLAN- UPPER LEVEL
SCALE: 1/8" = 1'-0"



LIFE SAFETY PLAN- LOWER LEVEL
SCALE: 1/8" = 1'-0"



PRELIMINARY DESIGN
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REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS: PDR SUBMITTAL
SUBMITTAL DATE: xx/xx/19
PROJECT MANAGER: P. GIORI
DESIGNED BY: M. NGUYEN
DRAWN BY: A. RODRIGUEZ
CHECKED BY: M. NGUYEN



PLANS PREPARED BY:
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San Diego
California 92121

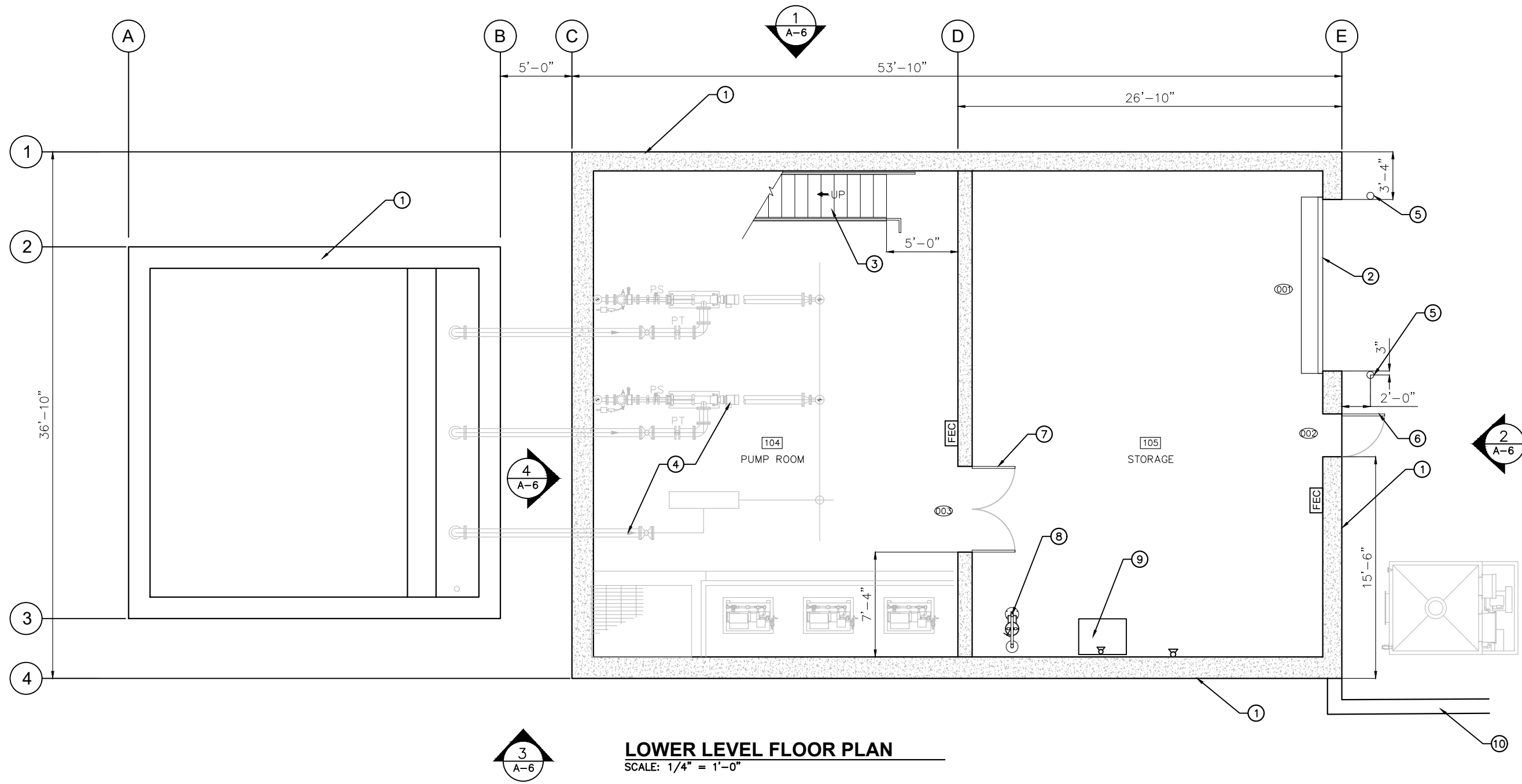


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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
DEWATERING BUILDING CODE ANALYSIS, LIFE SAFETY PLAN

GA-2
PROJECT NO. 11652
DWG. NO. 24 OF 114

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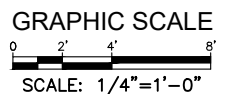


LOWER LEVEL FLOOR PLAN

SCALE: 1/4" = 1'-0"

KEY NOTES:

- ① CONCRETE WALL -SEE STRUCTURAL DRAWINGS-TYP.
- ② POWER OPERATED OVERHEAD COILING DOOR- TYP.
- ③ STAIR WITH RAILING ON BOTH SIDES, SEE SHEET XXX FOR LAYOUT- TYP.
- ④ PIPING SEE SHEET M-XXX FOR LAYOUT- TYP.
- ⑤ CONCRETE FILLED METAL BOLLARD- TYP.
- ⑥ 3'-0 X 7'0" HOLLOW METAL DOOR ON METAL FRAME- TYP.
- ⑦ 6'-0 X 7'0" PAIR HOLLOW METAL DOOR ON METAL FRAME- TYP.
- ⑧ EMERGENCY SHOWER/EYEWASH-TYP.
- ⑨ SINK, SEE PLUMBING PLAN
- ⑩ RETAINING WALL, SEE STRUCTURAL DRAWING



PRELIMINARY DESIGN
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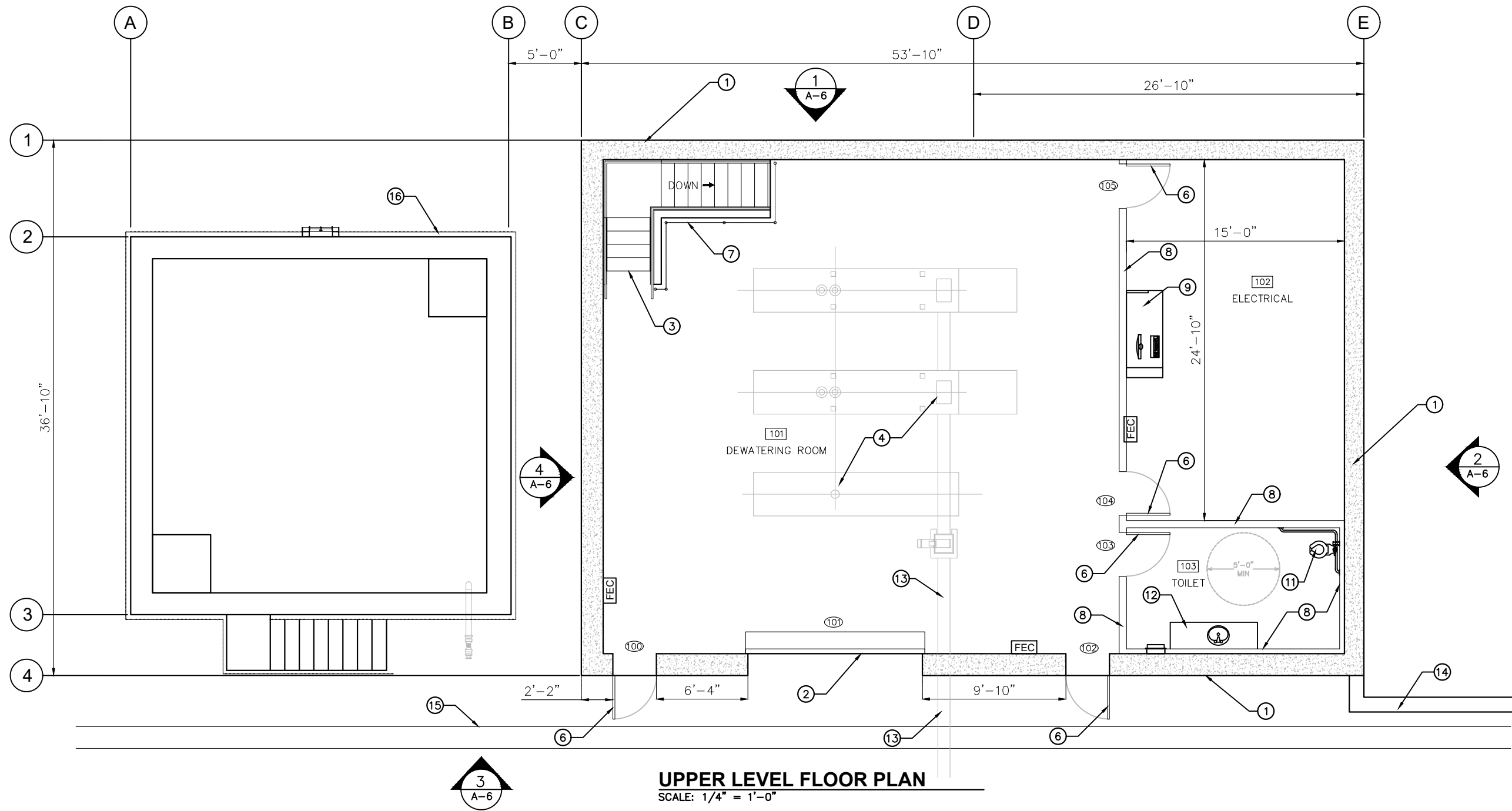
PLANS PREPARED BY:
MBN GROUP
 5755 Oberlin Drive
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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
 DEWATERING BUILDING
 LOWER LEVEL FLOOR PLAN

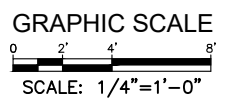
A-1
 PROJECT NO.
 11652
 DWG. NO. 25 OF 114



UPPER LEVEL FLOOR PLAN
SCALE: 1/4" = 1'-0"

KEY NOTES:

- ① CONCRETE WALL -SEE STRUCTURAL DRAWINGS-TYP.
- ② POWER OPERATED OVERHEAD COILING DOOR- TYP.
- ③ STAIR WITH RAILING ON BOTH SIDES, SEE SHEET XXX FOR LAYOUT- TYP.
- ④ PIPING SEE SHEET M-XXX FOR LAYOUT- TYP.
- ⑤ CONCRETE FILLED METAL BOLLARD- TYP.
- ⑥ 3'-0 X 7'0" HOLLOW METAL DOOR ON METAL FRAME- TYP.
- ⑦ 42" HIGH RAILING AT EDGE OF OPENING- TYP.
- ⑧ 3-5/8" METAL STUD WALL WITH GYPSUM BOARD EA. SIDE. PROVIDE W.R. BOARD @ TOILET SIDE- TYP.
- ⑨ CABINET- TYP.
- ⑩ 3-5/8" METAL FURRING CHANNEL WITH W.R. BOARD ON THE TOILET SIDE.
- ⑪ TOILET
- ⑫ SOLID SURFACE COUNTERTOP WITH INTEGRAL SINK
- ⑬ CONVEYOR ABOVE
- ⑭ RETAINING WALL, SEE STRUCTURAL DRAWING
- ⑮ CURB, SEE CIVIL DRAWING
- ⑯ RAILING, SEE STRUCTURAL DRAWINGS

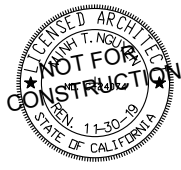


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REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS: PDR SUBMITTAL
SUBMITTAL DATE: xx/xx/19
PROJECT MANAGER: P. GIORI
DESIGNED BY: M. NGUYEN
DRAWN BY: A. RODRIGUEZ
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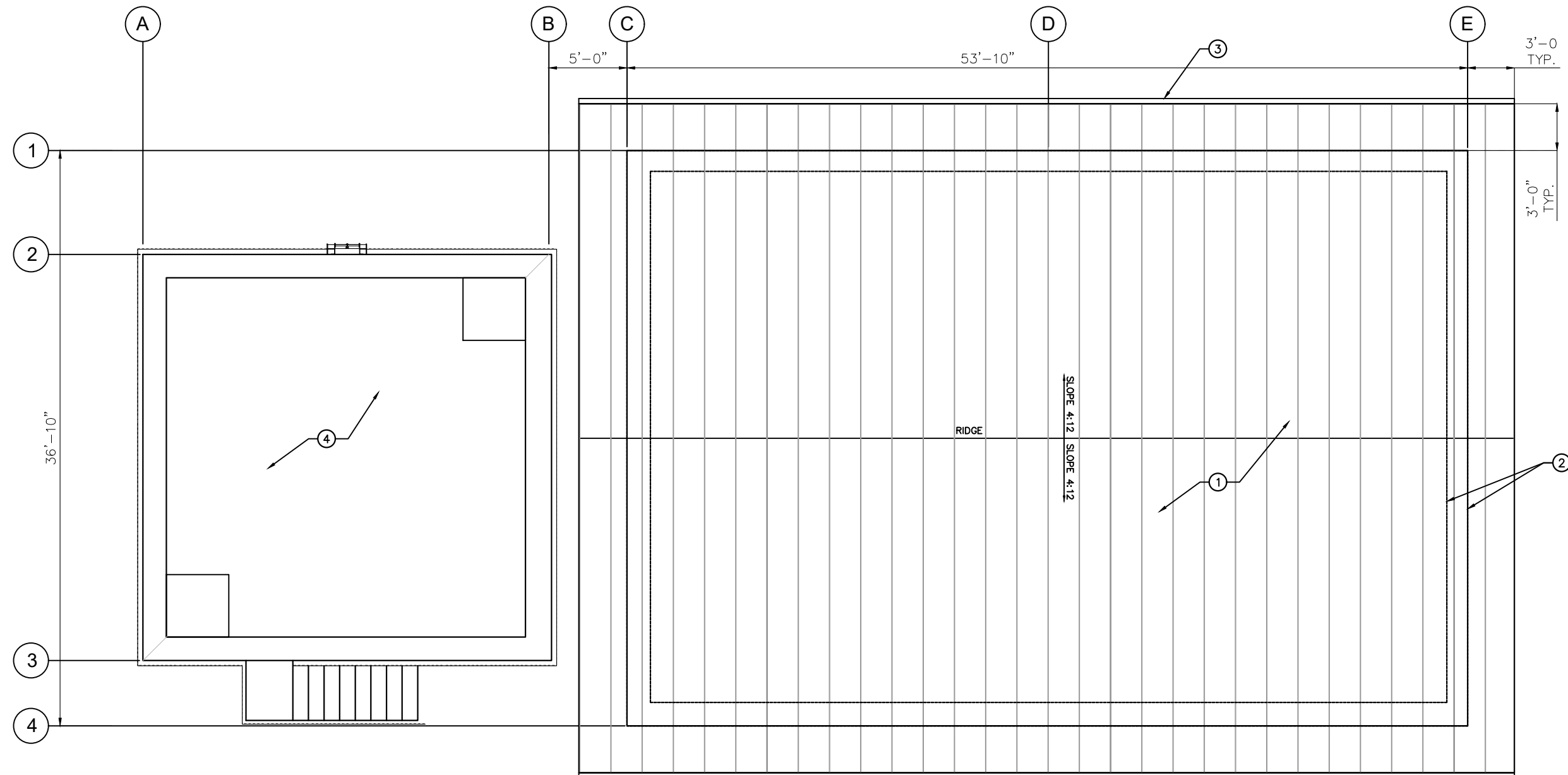


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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
DEWATERING BUILDING
UPPER LEVEL FLOOR PLAN

A-2
PROJECT NO. 11652
DWG. NO. 26 OF 114

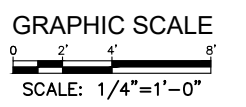
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ROOF PLAN
SCALE: 1/4" = 1'-0"

KEY NOTES:

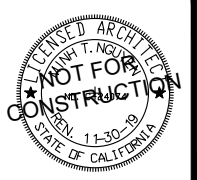
- ① STANDING SEAM METAL ROOFING- TYP.
- ② BUILDING LINE BELOW- TYP.
- ③ ROOF GUTTER- TYP.
- ④ SEE STRUCTURAL DRAWINGS



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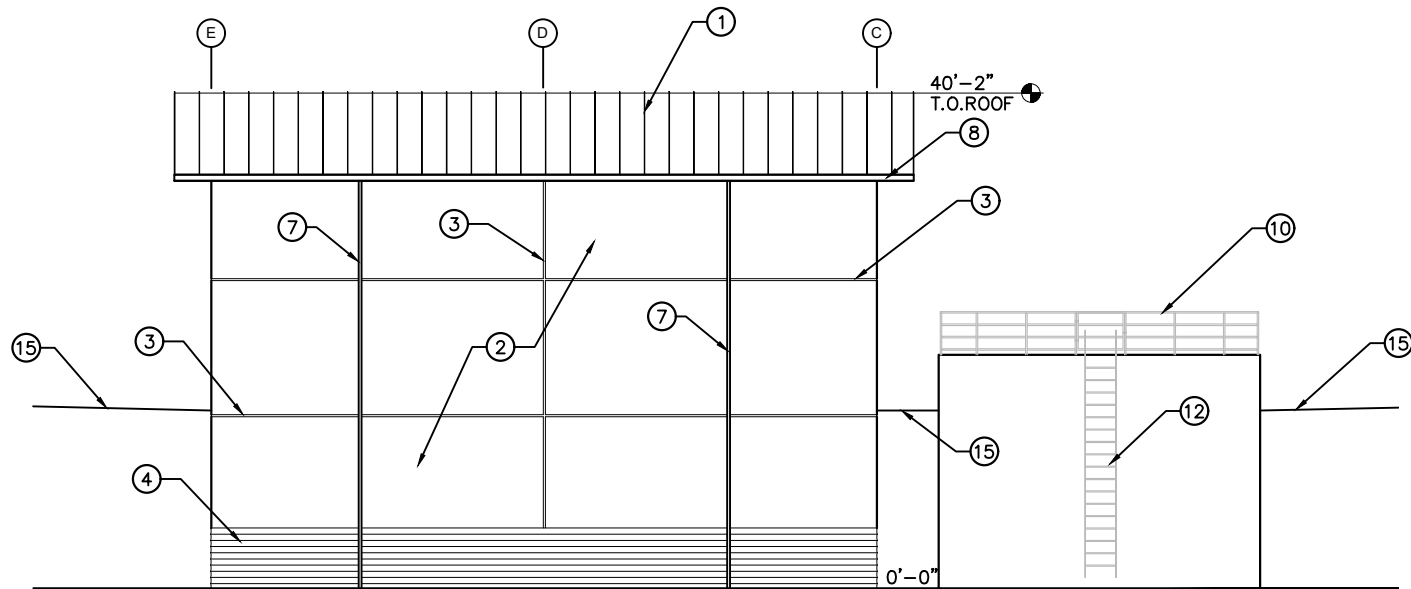


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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS

DEWATERING BUILDING
 ROOF PLAN

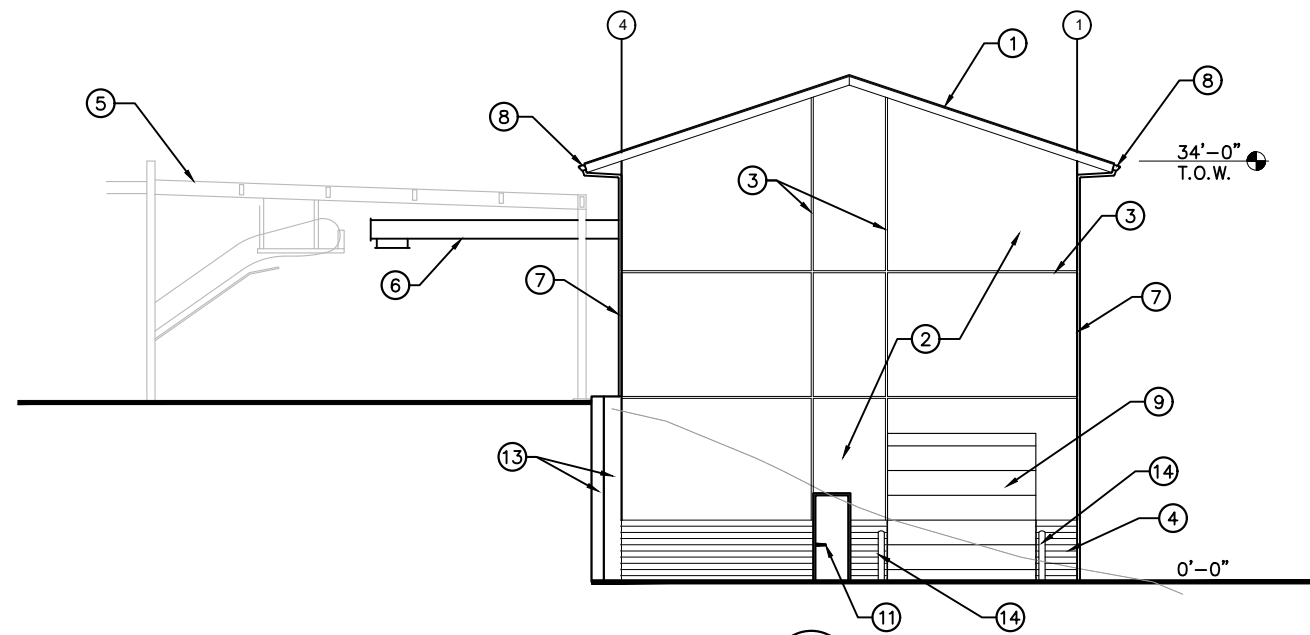
A-3
 PROJECT NO. 11652
 DWG. NO. 27 OF 114



EXTERIOR ELEVATIONS- NORTH

SCALE: 1/8" = 1'-0"

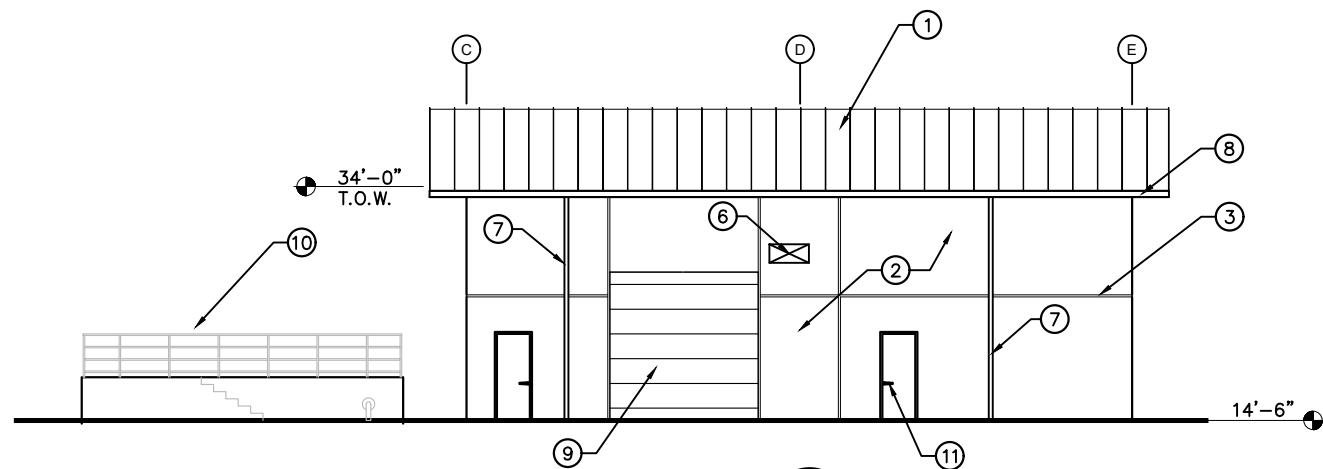
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EXTERIOR ELEVATIONS- NORTH

SCALE: 1/8" = 1'-0"

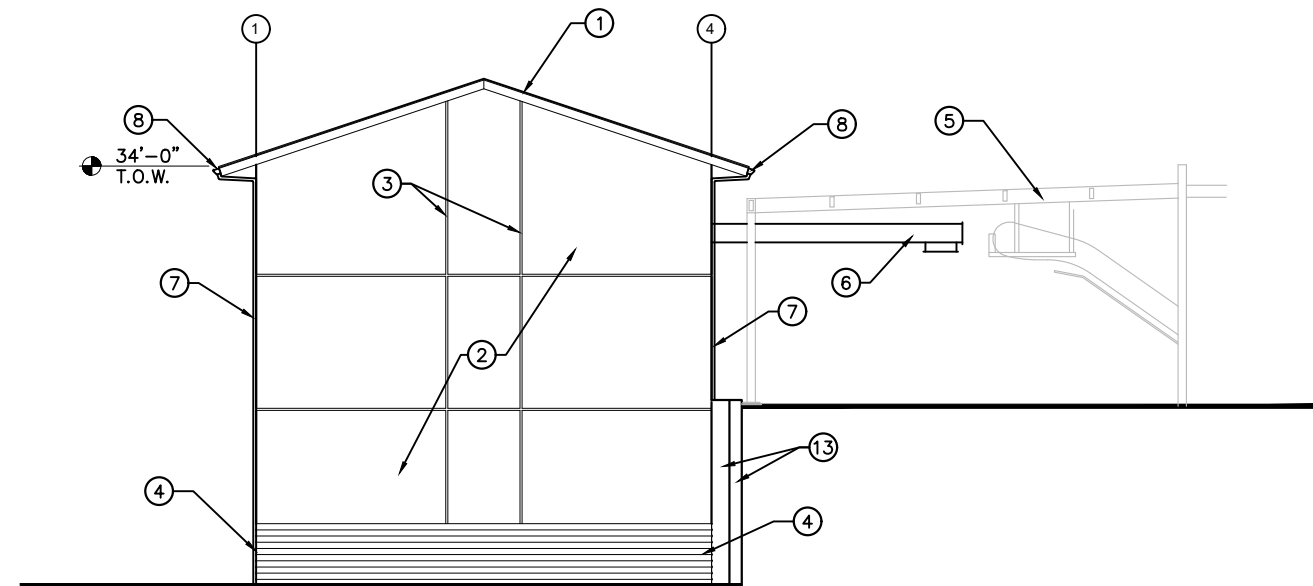
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EXTERIOR ELEVATIONS- NORTH

SCALE: 1/8" = 1'-0"

3



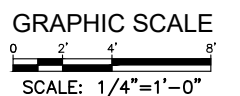
EXTERIOR ELEVATIONS- NORTH

SCALE: 1/8" = 1'-0"

4

KEY NOTES:

- ① STANDING SEAM METAL ROOFING- TYP.
- ② CONCRETE WALL SMOOTH FINISHED -SEE STRUCT. DWGS-TYP.
- ③ 2" X 1/4" DEEP CONCRETE REVEAL-TYP.
- ④ 5'-0" HIGH CORRUGATED CONCRETE @ BASE-TYP.
- ⑤ EXISTING FRAMING
- ⑥ CONVEYOR, SEE MECHANICAL DRAWINGS
- ⑦ ROOF DRAIN- TYP.
- ⑧ ROOF GUTTER- TYP.
- ⑨ POWER OPERATED OVERHEAD COILING DOOR- TYP.
- ⑩ RAILING- SEE STRUCTURAL DRAWINGS
- ⑪ 3'-0 X 7'0" HOLLOW METAL DOOR ON METAL FRAME- TYP.
- ⑫ ACCESS LADDER, SEE STRUCTURAL DRAWINGS
- ⑬ RETAINING WALL, SEE STRUCTURAL DRAWING
- ⑭ CONCRETE FILLED METAL BOLLARD- TYP.
- ⑮ FINISH PAVING BEYOND



PRELIMINARY DESIGN
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REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS: PDR SUBMITTAL
 SUBMITTAL DATE: XX/XX/19
 PROJECT MANAGER: P. GIORI
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 DRAWN BY: A. RODRIGUEZ
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PLANS PREPARED BY:
MBN GROUP
 5755 Oberlin Drive
 Suite 110
 San Diego, California 92121

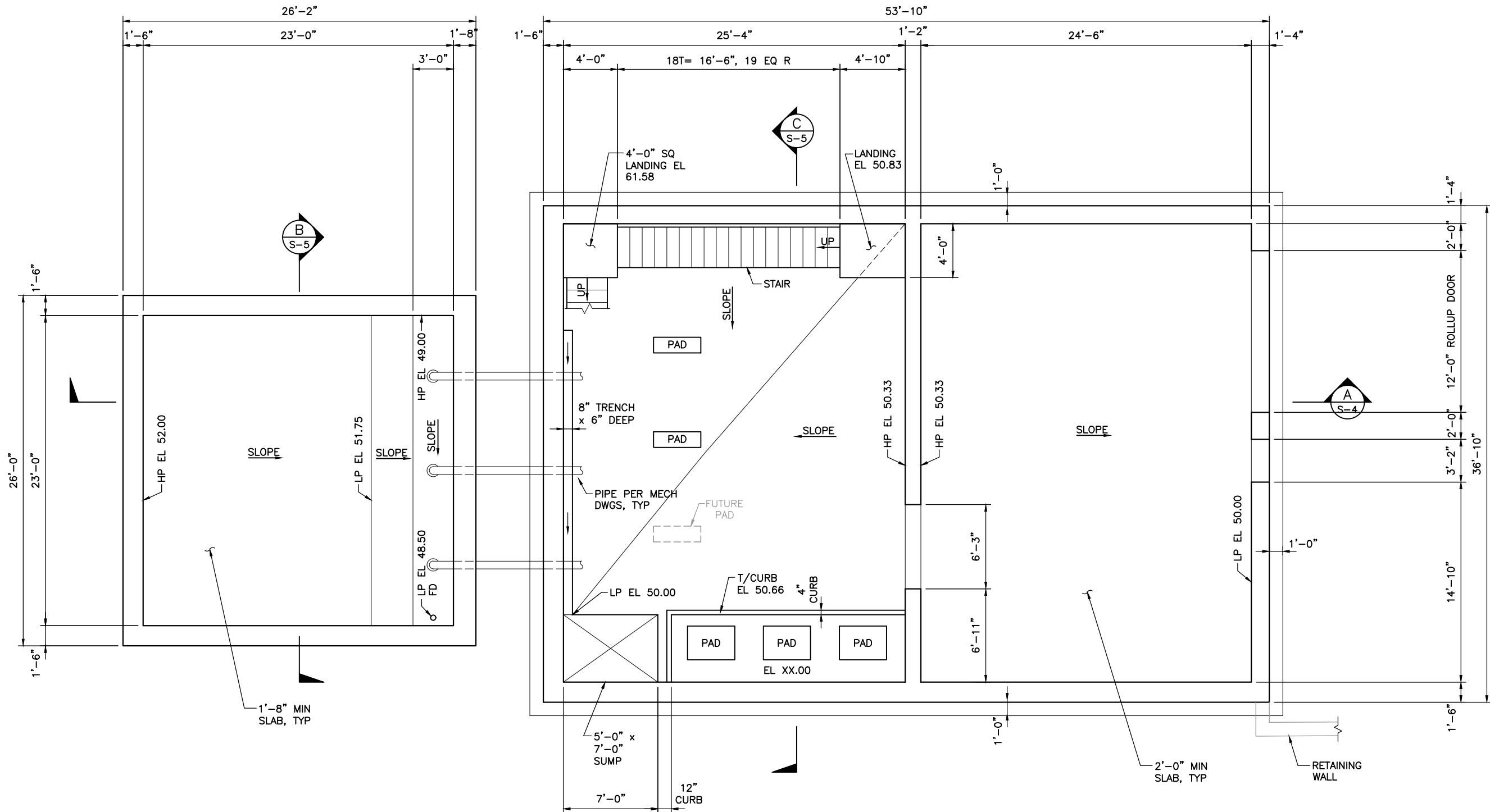


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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
 DEWATERING BUILDING
 EXTERIOR ELEVATIONS

A-6
 PROJECT NO. 11652
 DWG. NO. 30 OF 114

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SLUDGE HOLDING TANK
PLAN
SCALE: 1/4"=1'-0"

DEWATERING BUILDING
PLAN
SCALE: 1/4"=1'-0"

Beyaz & Patel
10920 VIA FRONTERA, STE. 210
SAN DIEGO, CALIFORNIA, 92127

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

PROGRESS:	PDR SUBMITTAL
SUBMITTAL DATE:	XX/XX/19
PROJECT MANAGER:	P. GIORI
DESIGNED BY:	HIW
DRAWN BY:	JEN
CHECKED BY:	SP



PLANS PREPARED BY:
DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.632.0164



Crestline
Sanitation District
24516 Lake Drive, (P.O. Box 3395)
Crestline, California 92325-3395
909.338.1751 Fax 909.338.5306

CRESTLINE SANITATION DISTRICT
**HUSTON CREEK WWTP PRIMARY CLARIFIER
AND DEWATERING BUILDING IMPROVEMENTS**

DEWATERING BUILDING
LOWER FLOOR AND FOUNDATION PLAN

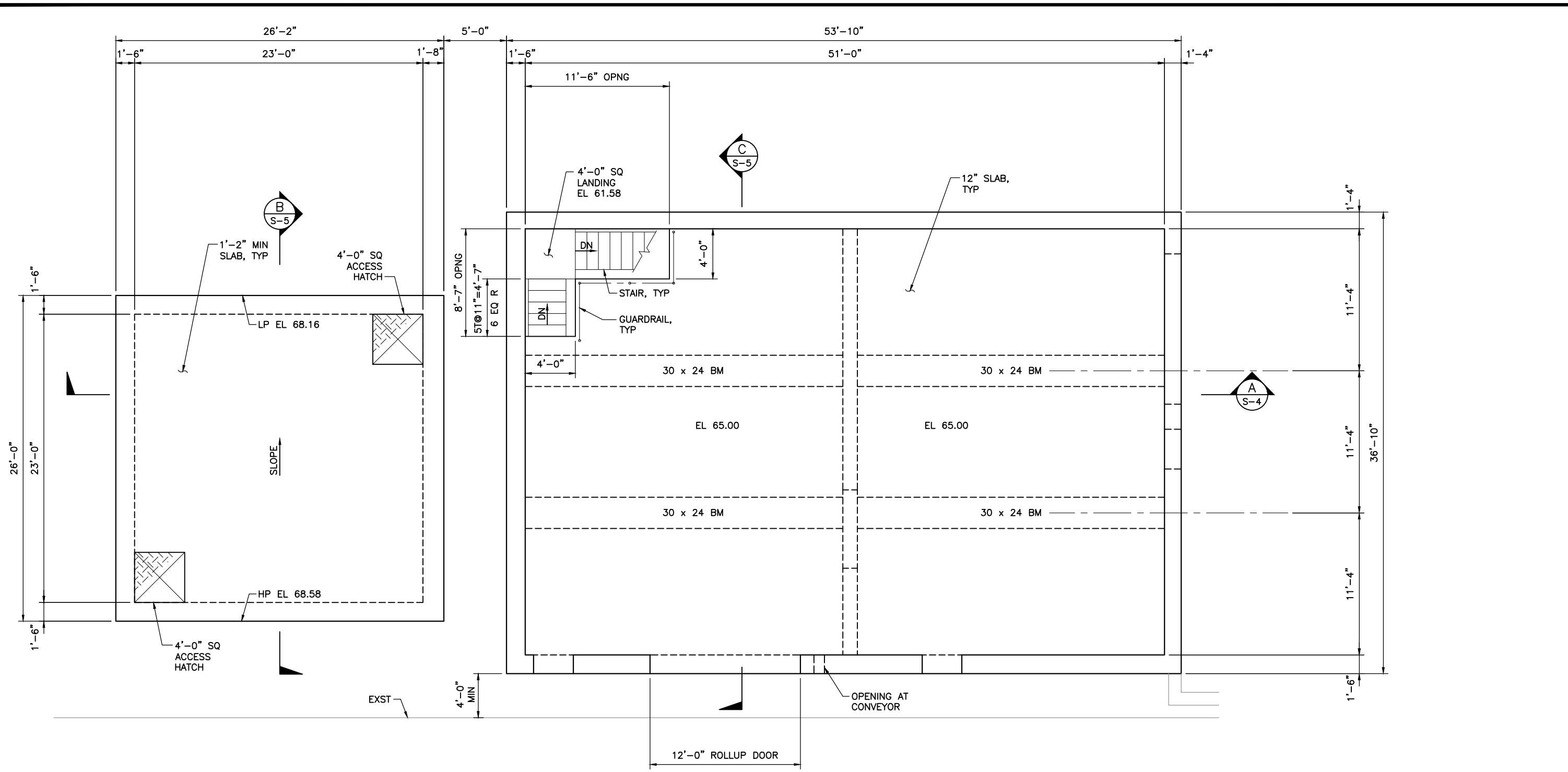
S-1

PROJECT NO.
11652

DWG. NO. ___ OF XX

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

R:\CAD\71CAD\TTG_P\Projects\7119\519003-Huston-Crestline-Dudek\dwgs\Stru\11652_SHXX_S-2 7/30/2019 11:55 AM



SLUDGE HOLDING TANK
PLAN
SCALE: 1/4"=1'-0"

DEWATERING BUILDING
PLAN
SCALE: 1/4"=1'-0"

Beyaz & Patel
10920 VIA FRONTERA, STE. 210
SAN DIEGO, CALIFORNIA, 92127

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS:	PDR SUBMITTAL
SUBMITTAL DATE:	XX/XX/19
PROJECT MANAGER:	P. GIORI
DESIGNED BY:	HIW
DRAWN BY:	JEN
CHECKED BY:	SP

PLANS PREPARED BY:

DUDEK
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CSD
Crestline Sanitation District

Crestline Sanitation District
24516 Lake Drive, (P.O. Box 3395)
Crestline, California 92325-3395
909.338.1751 Fax 909.338.5306

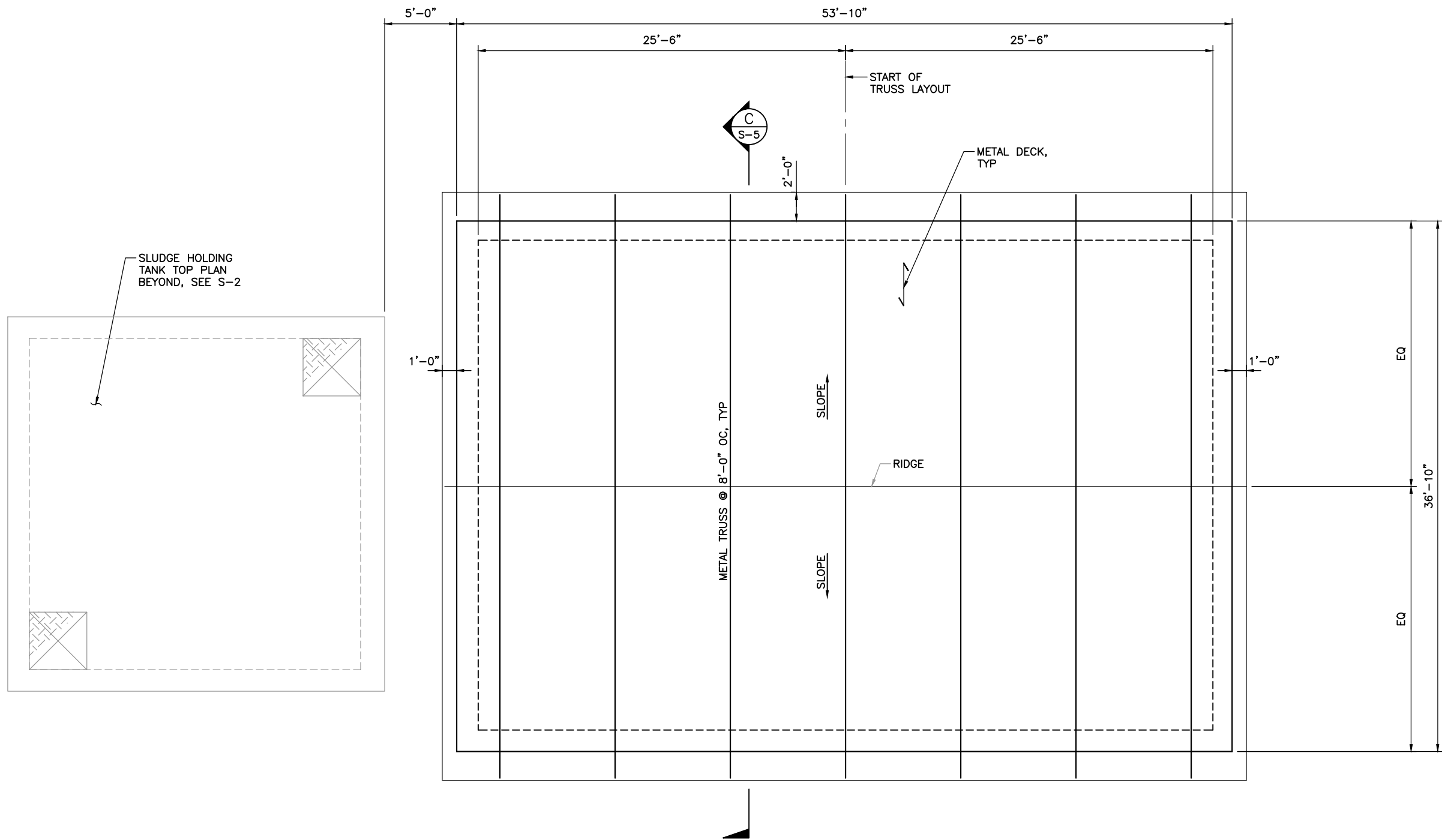
CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS

DEWATERING BUILDING
UPPER FLOOR PLAN

S-2
PROJECT NO.
11652
DWG. NO. ____ OF XX



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DEWATERING BUILDING
PLAN
 SCALE: 1/4"=1'-0"

Beyaz & Patel
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 SAN DIEGO, CALIFORNIA, 92127

PRELIMINARY DESIGN
 NOT FOR CONSTRUCTION

PROGRESS:	PDR SUBMITTAL
SUBMITTAL DATE:	XX/XX/19
PROJECT MANAGER:	P. GIORI
DESIGNED BY:	HIW
DRAWN BY:	JEN
CHECKED BY:	SP

NOT FOR CONSTRUCTION

PLANS PREPARED BY:
DUDEK
 605 Third Street Encinitas, CA 92024
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Crestline
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 24516 Lake Drive, (P.O. Box 3395)
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CRESTLINE SANITATION DISTRICT
**HUSTON CREEK WWTP PRIMARY CLARIFIER
 AND DEWATERING BUILDING IMPROVEMENTS**

DEWATERING BUILDING
 ROOF PLAN

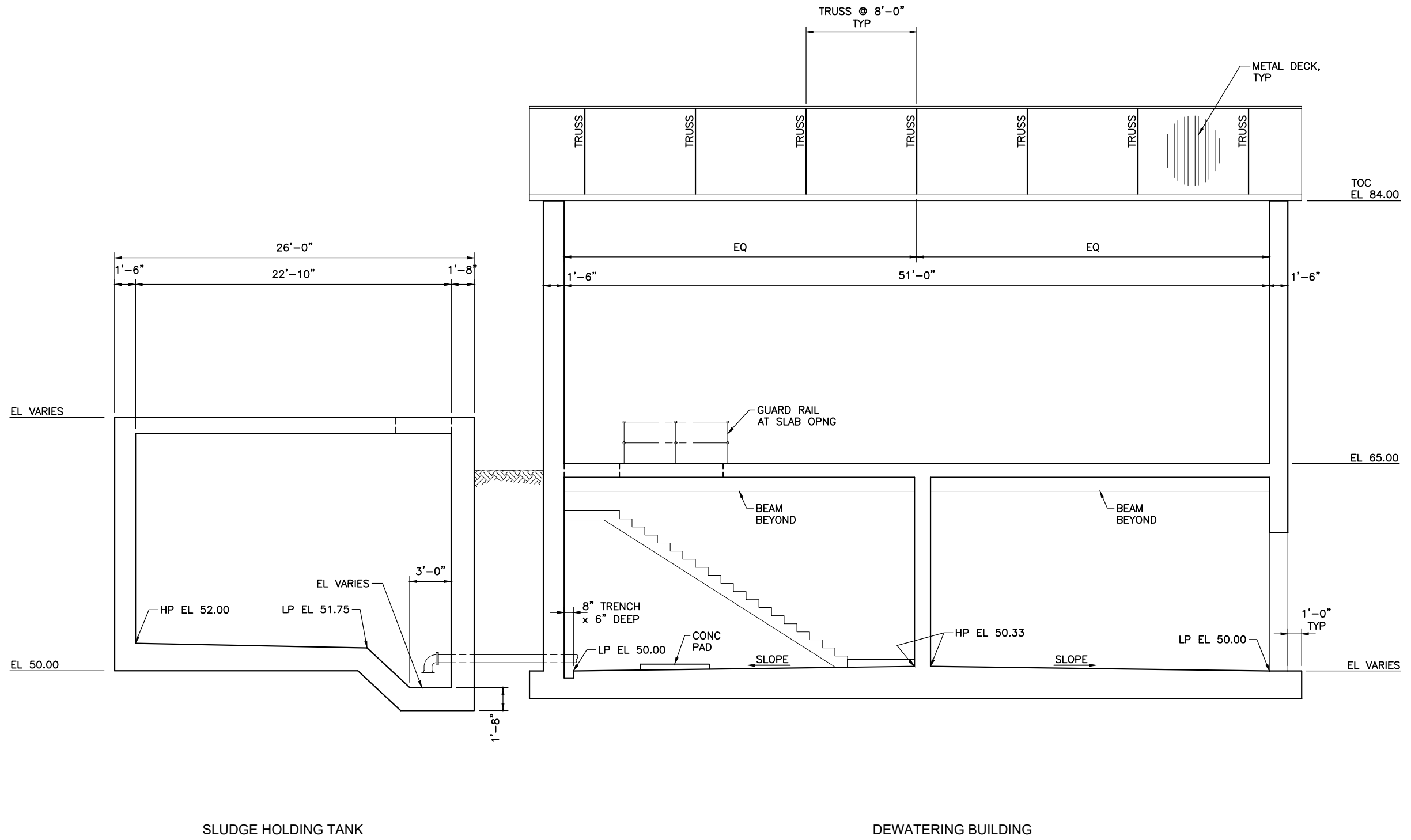
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PROJECT NO.
 11652

DWG. NO. ____ OF **XX**

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

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SLUDGE HOLDING TANK

DEWATERING BUILDING

SECTION **A**
SCALE: 1/4"=1'-0"
S-1

PRELIMINARY DESIGN
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Beyaz & Patel
10920 VIA FRONTERA, STE. 210
SAN DIEGO, CALIFORNIA, 92127

PROGRESS: PDR SUBMITTAL
SUBMITTAL DATE: XX/XX/19
PROJECT MANAGER: P. GIORI
DESIGNED BY: HIW
DRAWN BY: JEN
CHECKED BY: SP

NOT FOR CONSTRUCTION

PLANS PREPARED BY:
DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.632.0164



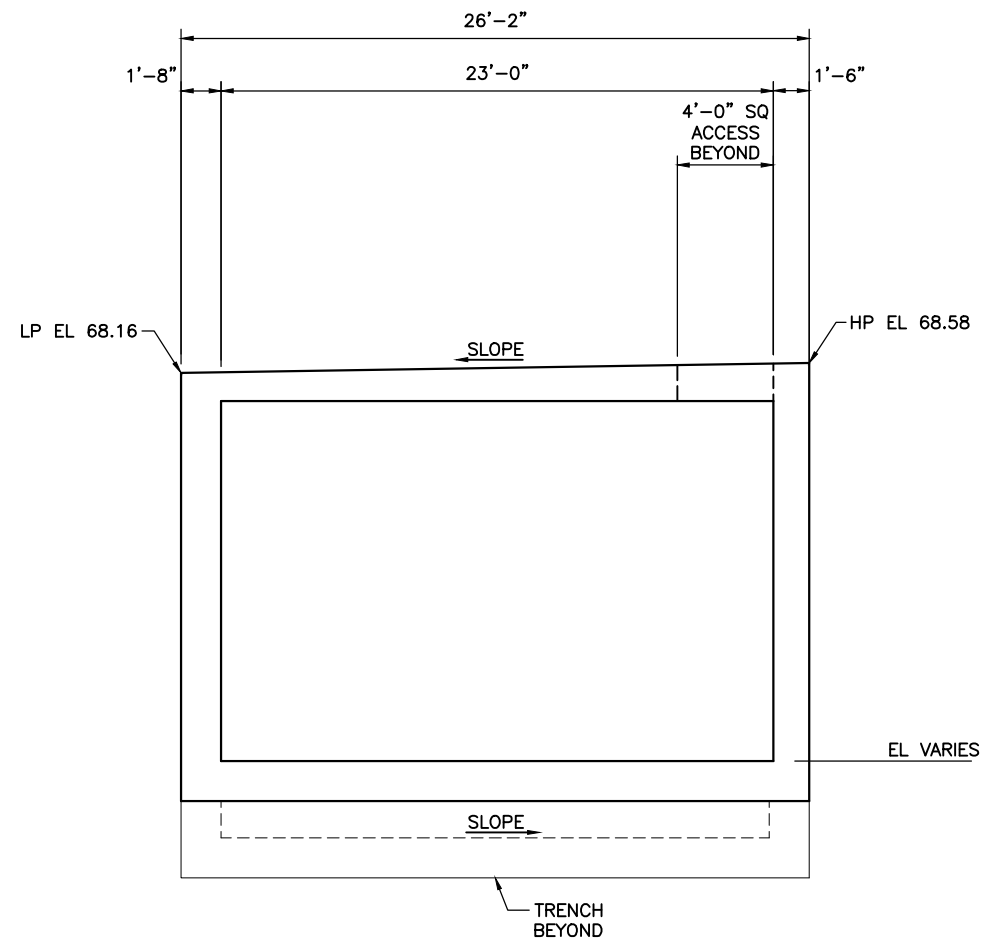
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24516 Lake Drive, (P.O. Box 3395)
Crestline, California 92325-3395
909.338.1751 Fax 909.338.5306

CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
DEWATERING BUILDING
SECTIONS - 1

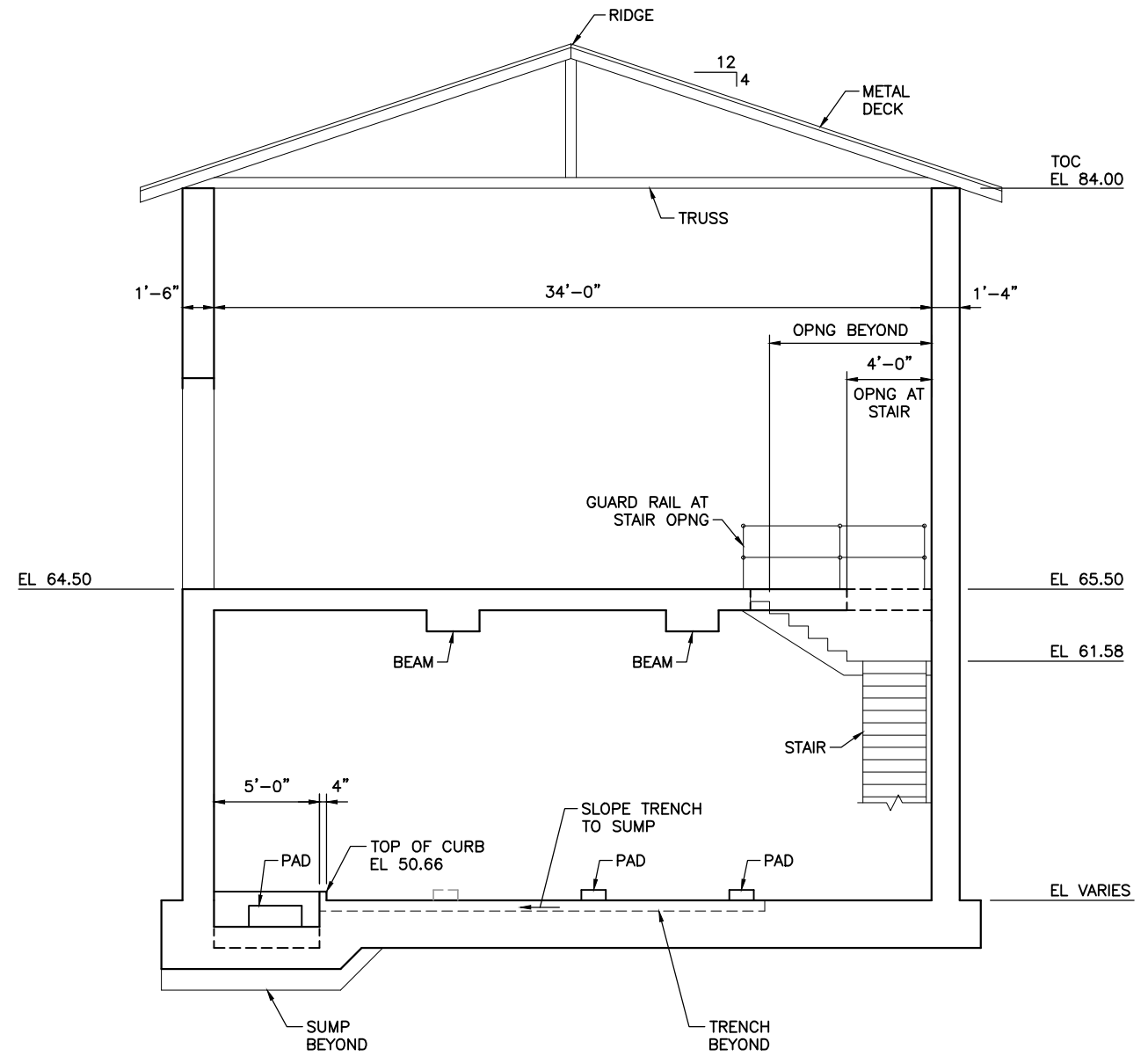
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PROJECT NO. 11652
DWG. NO. ____ OF XX

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

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SLUDGE HOLDING TANK
SECTION **B**
SCALE: 1/4"=1'-0" S-1



DEWATERING BUILDING
SECTION **C**
SCALE: 1/4"=1'-0" S-1

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

Beyaz & Patel
10920 VIA FRONTERA, STE. 210
SAN DIEGO, CALIFORNIA, 92127

PROGRESS:	PDR SUBMITTAL
SUBMITTAL DATE:	XX/XX/19
PROJECT MANAGER:	P. GIORI
DESIGNED BY:	HIW
DRAWN BY:	JEN
CHECKED BY:	SP

NOT FOR CONSTRUCTION

PLANS PREPARED BY:
DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.632.0164



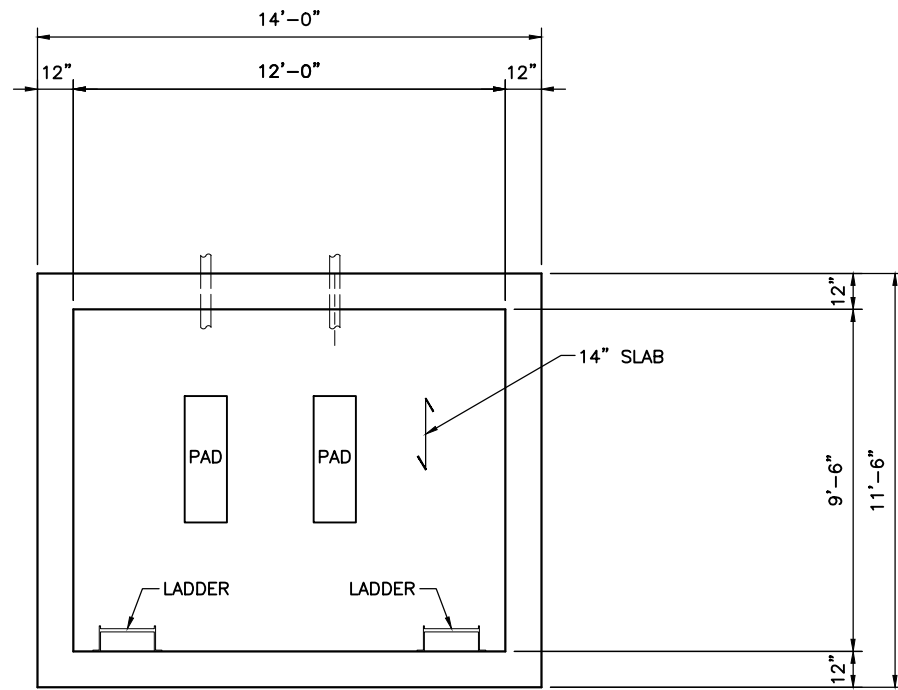
Crestline Sanitation District
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CRESTLINE SANITATION DISTRICT
**HUSTON CREEK WWTP PRIMARY CLARIFIER
AND DEWATERING BUILDING IMPROVEMENTS**

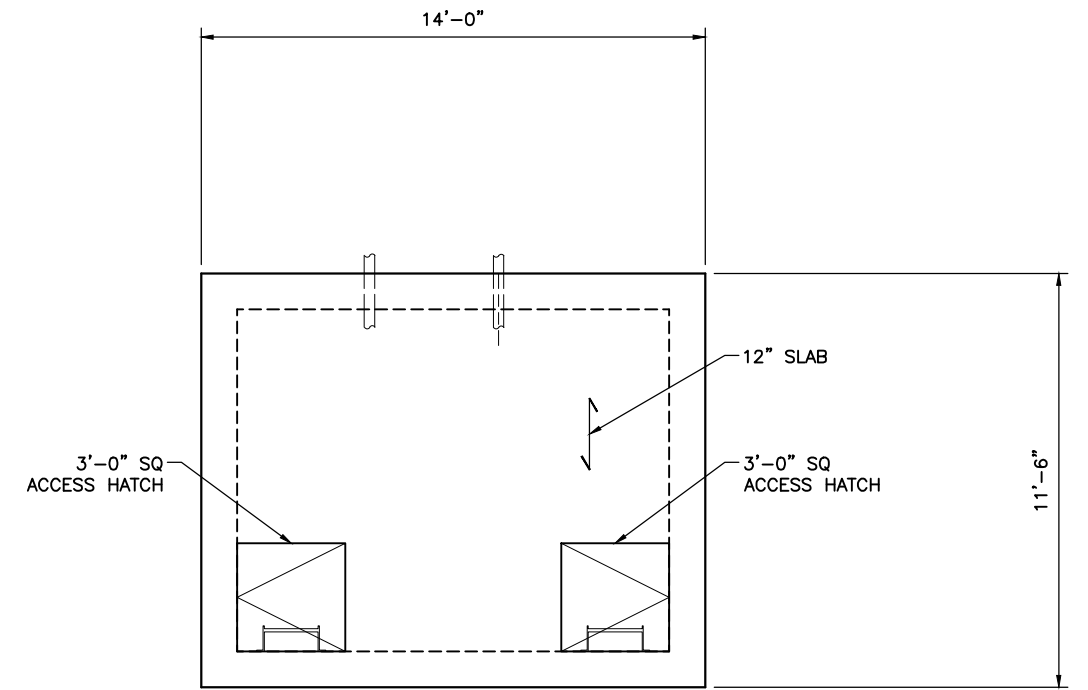
S-5
PROJECT NO.
11652
DWG. NO. ____ OF XX

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

R:\CAD\71CAD\TTC_P\Projects\7119\519003-Huston-Crestline-Dudek\dwgs\Stru\11652 SHXX S-15 7/30/2019 11:58 AM



SLUDGE PUMP VAULT
BOTTOM PLAN
 SCALE: 3/8" = 1'-0"



SLUDGE PUMP VAULT
TOP PLAN
 SCALE: 3/8" = 1'-0"

PRELIMINARY DESIGN
 NOT FOR CONSTRUCTION

Beyaz & Patel
 10920 VIA FRONTERA, STE. 210
 SAN DIEGO, CALIFORNIA, 92127

PROGRESS: PDR SUBMITTAL
 SUBMITTAL DATE: XX/XX/19
 PROJECT MANAGER: P. GIORI
 DESIGNED BY: HIW
 DRAWN BY: JEN
 CHECKED BY: SP

NOT FOR CONSTRUCTION

PLANS PREPARED BY:
DUDEK
 605 Third Street Encinitas, CA 92024
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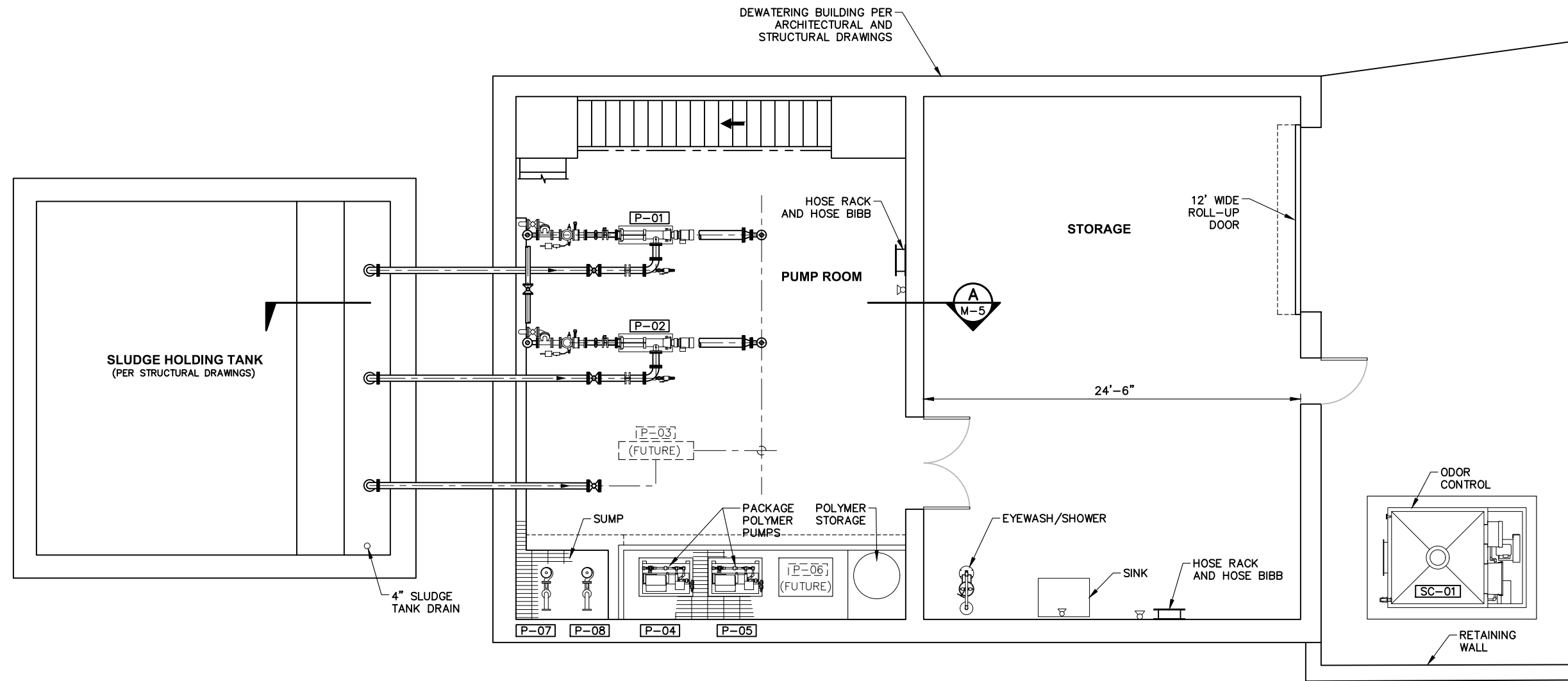
Crestline Sanitation District
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CRESTLINE SANITATION DISTRICT
**HUSTON CREEK WWTP PRIMARY CLARIFIER
 AND DEWATERING BUILDING IMPROVEMENTS**
 SLUDGE PUMP VAULT
 PLANS

S-15
 PROJECT NO.
 11652
 DWG. NO. ____ OF XX

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

P:\01\Engineering\Crestline SD\11652 - Huston Creek Dewatering Bldg\06\CAD\11652 SH68-69 M-1 to M-2 7/30/2019 8:23 AM



PLAN
SCALE: 1/4"=1'-0"

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

PROGRESS: PDR SUBMITTAL
SUBMITTAL DATE: xx/xx/19
PROJECT MANAGER: P. GIORI
DESIGNED BY: P. GIORI
DRAWN BY: N. HUNTER
CHECKED BY: N. HARPER



PLANS PREPARED BY:
DUDEK
605 Third Street Encinitas, CA 92024
760.942.5147 Fax 760.632.0164



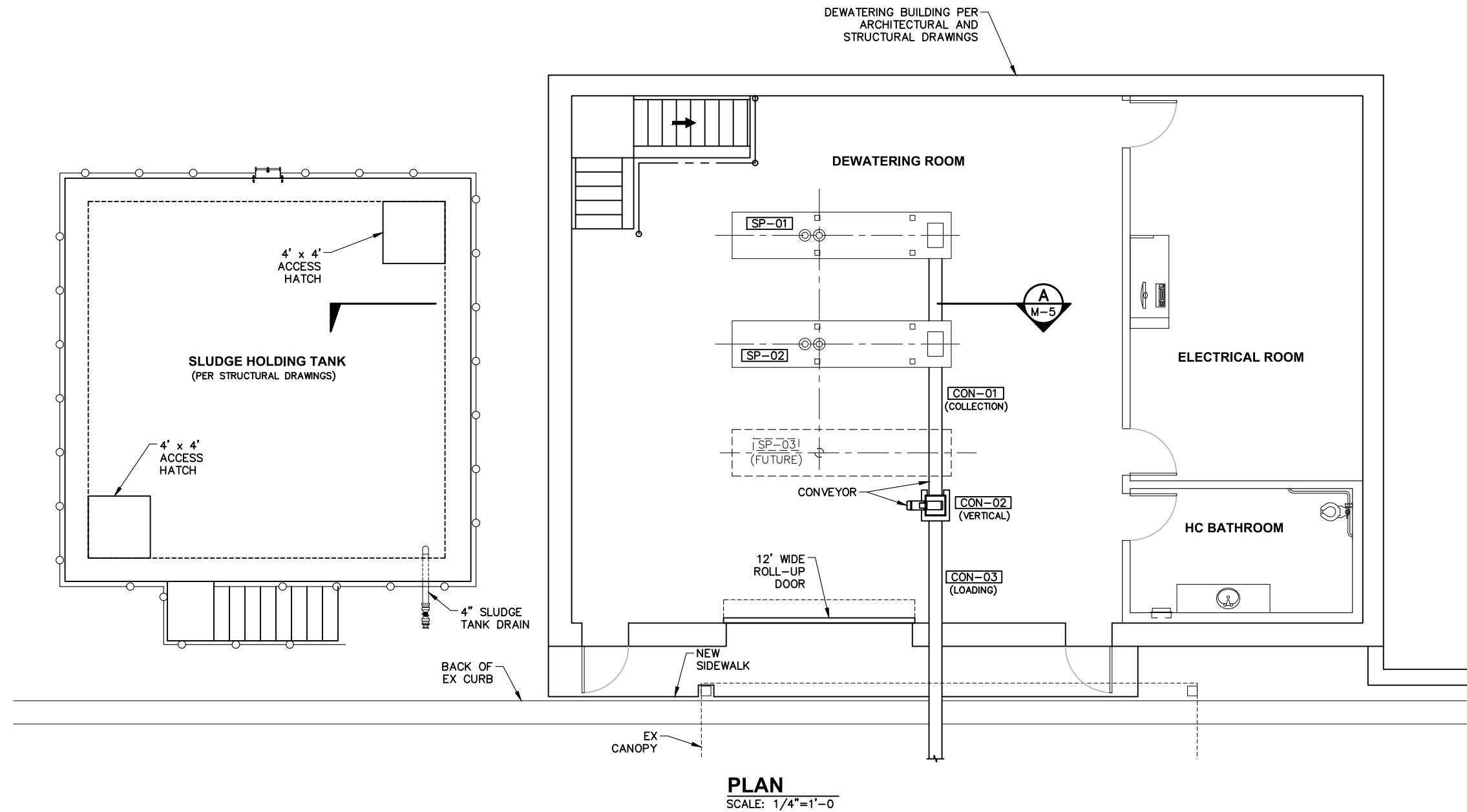
Crestline Sanitation District
24516 Lake Drive, (P.O. Box 3395)
Crestline, California 92325-3395
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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
DEWATERING BUILDING PLAN
LOWER LEVEL (EL. 50)

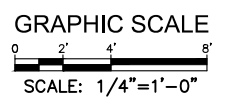
M-1
PROJECT NO. 11652
DWG. NO. 68 OF 114

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

P:\01\Engineering\Crestline SD\11652 - Huston Creek Dewatering Bldg\06\CAD\11652 SH68-69 M-1 to M-2 7/30/2019 10:11 AM



PLAN
SCALE: 1/4"=1'-0"



PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS: PDR SUBMITTAL
 SUBMITTAL DATE: xx/xx/19
 PROJECT MANAGER: P. GIORI
 DESIGNED BY: P. GIORI
 DRAWN BY: N. HUNTER
 CHECKED BY: N. HARPER



PLANS PREPARED BY:
DUDEK
 605 Third Street Encinitas, CA 92024
 760.942.5147 Fax 760.632.0164

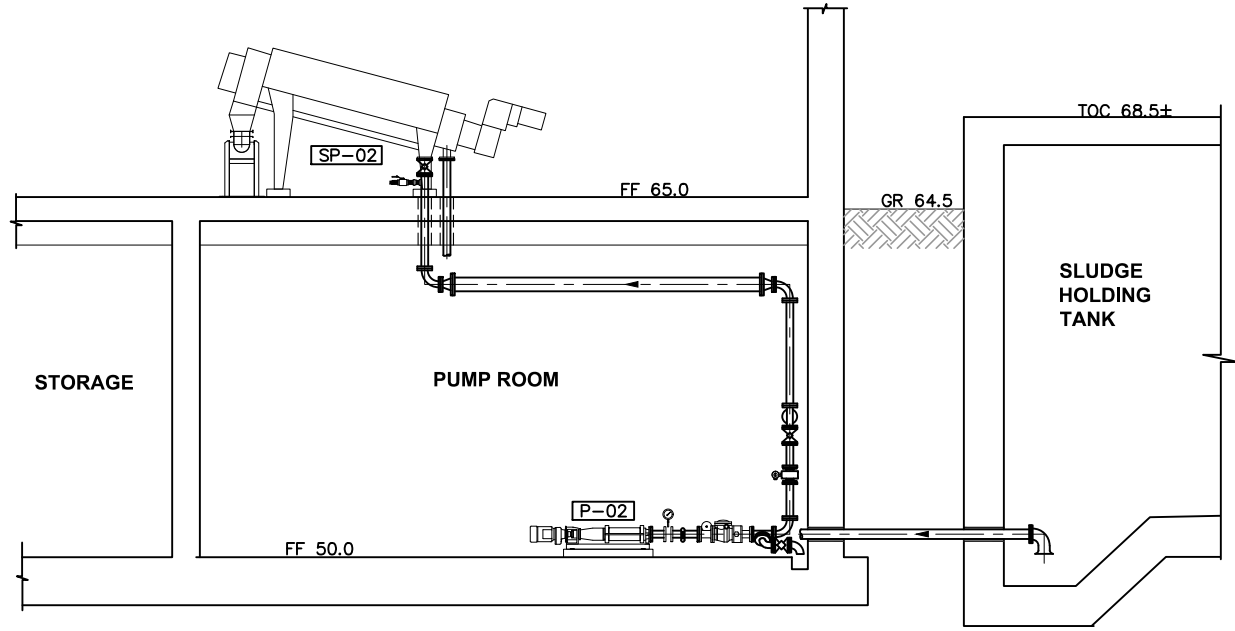


Crestline Sanitation District
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CRESTLINE SANITATION DISTRICT
**HUSTON CREEK WWTP PRIMARY CLARIFIER
 AND DEWATERING BUILDING IMPROVEMENTS**
 DEWATERING BUILDING PLAN
 UPPER LEVEL (EL. 65.0)

M-2
 PROJECT NO.
 11652
 DWG. NO. **69** OF **114**

P:\01\Engineering\Crestline SD\11652 - Huston Creek Dewatering Bldg\06\CAD\11652 SH72 M-5 7/29/2019 2:59 PM



SECTION
SCALE: 1/4"=1'-0"
A
M-1/M-2

GRAPHIC SCALE
0 1 2 4 6
SCALE: 3/8"=1'-0"

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS: PDR SUBMITTAL
SUBMITTAL DATE: xx/xx/19
PROJECT MANAGER: P. GIORI
DESIGNED BY: P. GIORI
DRAWN BY: N. HUNTER
CHECKED BY: N. HARPER



PLANS PREPARED BY:
DUDEK
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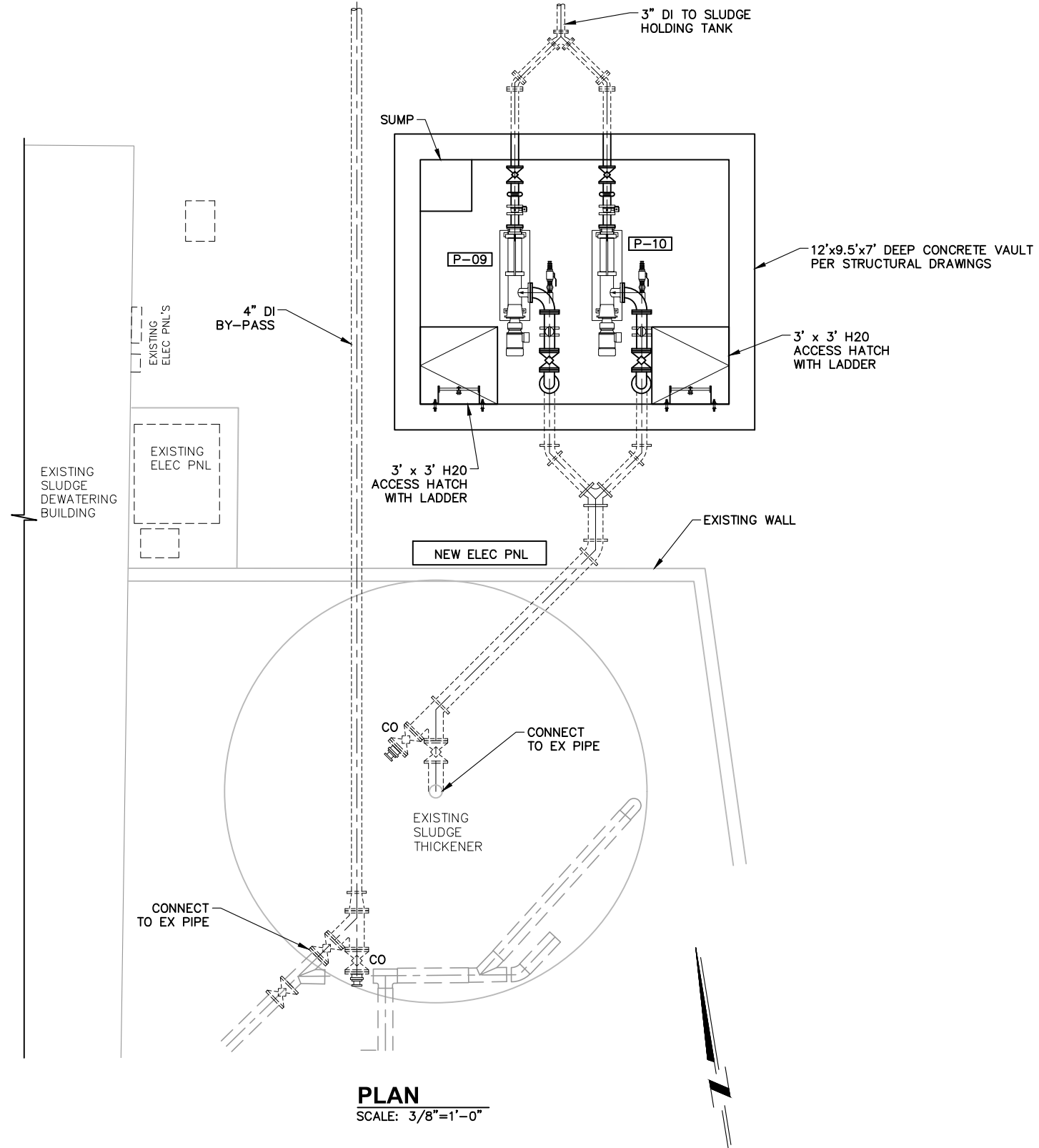


Crestline Sanitation District
24516 Lake Drive, (P.O. Box 3395)
Crestline, California 92325-3395
909.338.1751 Fax 909.338.5306

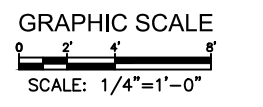
CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
DEWATERING BUILDING SECTIONS

M-5
PROJECT NO. 11652
DWG. NO. 72 OF 114

P:\01\Engineering\Crestline SD\11652 - Huston Creek Dewatering Bldg\CAD\11652 SH78 M-11 7/30/2019 8:33 AM



PLAN
SCALE: 3/8"=1'-0"



PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS: PDR SUBMITTAL
SUBMITTAL DATE: xx/xx/19

PROJECT MANAGER: P. GIORI
DESIGNED BY: P. GIORI
DRAWN BY: N. HUNTER
CHECKED BY: N. HARPER



PLANS PREPARED BY:
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605 Third Street Encinitas, CA 92024
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Crestline Sanitation District
24516 Lake Drive, (P.O. Box 3395)
Crestline, California 92325-3395
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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS

TRANSFER PUMP STATION
PLAN AND SECTIONS

M-11
PROJECT NO.
11652
DWG. NO. 78 OF 114

CONDUIT PLAN	SINGLE LINE DIAGRAM	SCHEMATIC DIAGRAM	DESCRIPTION
			CIRCUIT BREAKER. UPPER NUMBER IS TRIP RATING. LOWER NUMBER IS NUMBER OF POLES
			THREE POSITION SWITCH. MAINTAINED CONTACT FUNCTION MAY VARY AS NOTED ON DIAGRAMS. CENTER POSITION IS OFF
			TWO POSITION SWITCH. MAINTAINED CONTACT FUNCTION MAY VARY AS NOTED ON DIAGRAMS
			MOMENTARY CONTACT PUSHBUTTON. FUNCTION MAY VARY AS NOTED ON DIAGRAMS
			MOMENTARY CONTACT PUSHBUTTON WITH PROVISION FOR LOCKOUT.
			LOCKABLE DISCONNECT SWITCH. RATING AND DETAILS AS NOTED ON DRAWINGS.
			LIMIT SWITCH. NORMALLY OPEN
			LIMIT SWITCH. NORMALLY CLOSED
			TIME DELAY RELAY CONTACT. OFF DELAY, NORMALLY OPEN, TIME OPEN
			TIME DELAY RELAY CONTACT. OFF DELAY, NORMALLY CLOSED, TIME CLOSED
			TIME DELAY RELAY CONTACT. ON DELAY, NORMALLY OPEN, TIME CLOSED
			TIME DELAY RELAY CONTACT. ON DELAY, NORMALLY CLOSED, TIME OPEN
			SOLENOID OPERATED VALVE
			MOTOR CONTROL CENTER DRAWOUT STABS
			MOTOR STARTER WITH THERMAL OVERLOADS. NUMBER INDICATES NEMA SIZE
			MOTOR OVERLOAD CONTACT
			MOTOR, NUMBER INDICATES HORSEPOWER
			INDICATING LIGHT, PUSH-TO-TEST. LETTER INDICATES COLOR. R=RED B=BLUE G=GREEN A=AMBER W=WHITE
			CONTACTOR OR RELAY COIL. LETTER OR NUMBER IS DESIGNATION
			NORMALLY CLOSED CONTACT. LETTER OR NUMBER IS DESIGNATION
			NORMALLY OPEN CONTACT. LETTER OR NUMBER IS DESIGNATION
			RUNNING TIME METER, NON-RESETTABLE
			FUSE, NUMBER INDICATES RATING
			CONTROL TRANSFORMER. RATING AS NOTED ON DRAWINGS OR AS REQUIRED BASED ON LOAD SERVED.
			KILOWATT METER
			PRESSURE SWITCH. CONTACT ACTION AS NOTED ON DRAWINGS

CONDUIT PLAN	SINGLE LINE DIAGRAM	SCHEMATIC DIAGRAM	DESCRIPTION
			POWER TRANSFORMER. RATINGS AS NOTED ON DRAWINGS
			DUPLEX RECEPTACLE. 20A, SPEC GRADE GROUNDING TYPE. UNLESS OTHERWISE NOTED ON DRAWINGS.
			TELEPHONE OUTLET
			JUNCTION BOX OR CONDUIT FITTING AS NOTED OR REQUIRED. (SHOWN WITH CONDUIT TURNING UP)
			LEVEL SWITCH, CONTACT ACTION AS NOTED ON DRAWINGS
			CONTROL PANEL OR EQUIPMENT AS NOTED
			FLOW SWITCH, CONTACT ACTION AS NOTED ON DRAWINGS
			FLUSH TOGGLE SWITCH, SINGLE POLE, SINGLE THROW
			FLUSH TOGGLE SWITCH, THREE WAY
			FLUORESCENT FIXTURE. SEE LIGHTING SCHEDULE.
			LIGHTING FIXTURE, WALL MOUNTED SEE LIGHTING SCHEDULE
			MH-MANHOLE PB-PULLBOX HH-HANDHOLE OR AS NOTED ON DRAWINGS
			TELEPHONE CONDUIT. SIZE AS NOTED
			GROUNDING GRID OR GROUNDING CONDUCTOR SIZE AS REQUIRED OR AS NOTED ON DRAWINGS
			GROUND PIGTAIL SIZE AS NOTED ON DRAWINGS
			EXOTHERMIC GROUND CONNECTION
			BOLTED GROUND CONNECTION
			CONDUIT BENDING UP
			CONDUIT BENDING DOWN
			UNDERGROUND OR CONCEALED CONDUIT, 1" MINIMUM
			EXPOSED CONDUIT, 3/4" MINIMUM.
			HOMERUN CONDUIT WITH 3 CONDUCTORS, NEUTRAL AND GROUND, CIRCUITS 1,3,5 PANEL PB1, NO HASHMARKS INDICATE 2 CONDUCTORS AND GROUND
			DRIVEN GROUND ROD/TEST WELL 3/4" X 10' Cu CLAD STEEL
			PANELBOARD OR AS NOTED ON DRAWING
			LIQUIDTIGHT FLEXIBLE CONDUIT
			CONDUIT NUMBER 'xxx', REFER TO CONDUIT SCHEDULE FOR DESCRIPTION

CONDUIT PLAN	SINGLE LINE DIAGRAM	SCHEMATIC DIAGRAM	DESCRIPTION
			MANUAL MOTOR STARTER
			GROUND
			HEATER, RATING AS NOTED ON DRAWING
			HORN OR AUDIBLE SIGNAL
			PHASE
			TERMINAL, INTERNAL WIRING
			TERMINAL, FIELD WIRING
			DOOR SWITCH
			CONDUIT STUB OUT
			DISCONNECT SWITCH, F = FUSED NF = NON-FUSED XX = AMP RATING
			TELEMETRY INPUT POINT
			PLC INPUT POINT AT RTU

STANDARD ABBREVIATIONS

A	AMPERES	MH	MANHOLE
AC	ALTERNATING CURRENT	MIN	MINIMUM OR MINUTE
AF	AMPERE FRAME	MLO	MAIN LUGS ONLY
AFC	ABOVE FINISHED CONCRETE	MOV	MOTOR OPERATED VALVE ACTUATOR
AFF	ABOVE FINISHED FLOOR	MSB	MAIN SWITCHBOARD
AFG	ABOVE FINISHED GRADE	MTG	MOUNTING
AT	AMPERE TRIP	MTR	MOTOR
ATS	AUTOMATIC TRANSFER SWITCH	N	NEUTRAL
AUX	AUXILIARY	NA	NON-AUTOMATIC
AUTO	AUTOMATIC	NC	NORMALLY CLOSED
AWG	AMERICAN WIRE GAUGE	NGIO	NORMALLY CLOSED, INSTANTANEOUS OPEN
BC	BARE COPPER	NCTC	NORMALLY CLOSED, TIME CLOSE
BD	BOARD BREAKER	NCTO	NORMALLY CLOSE, TIME OPEN
BKR	CONDUIT CABINET	NEC	NATIONAL ELECTRIC CODE
C	CABINET	NIC	NOT IN CONTRACT
CAB	CABINET	No	NUMBER
CB	CIRCUIT BREAKER	NO	NORMALLY OPEN
CKT	CIRCUIT	NOIC	NORMALLY OPEN, INSTANTANEOUS CLOSE
CLG	CEILING	NOTC	NORMALLY OPEN, TIME CLOSE
C.O.	CONDUIT ONLY	NOTO	NORMALLY OPEN, TIME OPEN
COMP	COMPARTMENT	NP	NAMEPLATE
COND	CONDUCTOR	NTS	NOT TO SCALE
CONT	CONTROL	OL	OVERLOAD
CONTD	CONTINUED	OTT	OVERTEMP SWITCH
CPT	CONTROL POWER TRANSFORMER	PB	PUSHBUTTON
CP	CONTROL PANEL	PB	PULLBOX
CT	CURRENT TRANSFORMER	PC	PHOTOCELL
CJ	COPPER	PCV	PUMP CONTROL VALVE
CR	CONTROL RELAY	PMR	POWER MONITOR RELAY
DC	DIRECT CURRENT	PNL	PANEL
DISC	DISCONNECT	POS	POSITION
DISC SW	DISCONNECT SWITCH	PR	PAIR
DPDT	DOUBLE POLE DOUBLE THROW	PR1	PRIMARY
DPST	DOUBLE POLE SINGLE THROW	PS	PRESSURE SWITCH
DWG	DRAWING	PT	POTENTIAL TRANSFORMER
DS	DOOR SWITCH	PVC	POLYVINYL CHLORIDE
EL	ELEVATION	PVC/RGS	PVC JACKETED RIGID GALVANIZED STEEL CONDUIT
EL_ELEV	ELECTRICAL METALLIC TUBING	PW	PART WINDING
E3	ELECTRICALLY OPERATED	RECEP	RECEPTACLE
EXIST	EXISTING	RCP	REMOTE CONTROL PANEL
FBO	FURNISHED BY OWNER	RGS	RIGID GALVANIZED STEEL CONDUIT
FDR	FEEDER	RTU	REMOTE TERMINAL UNIT
FIN	FINISHED	RVAT	REDUCED VOLTAGE AUTO TRANSFORMER
FLA	FULL LOAD AMPS	RVD	REDUCED VOLTAGE WYE DELTA
FLEX	FLEXIBLE	SCF	SOUTHERN CALIFORNIA EDISON
FM	FLOW METER	SEC	SECONDARY
FS	FLOW SWITCH	SEL	SELECTOR
FT OR ' "	FEET OR FOOT	SP	SPARE
FT	FLOW TRANSMITTER	SPEC	SPECIFICATION
FUTURE	FUTURE	SPDT	SINGLE POLE DOUBLE THROW
FVNR	FULL VOLTAGE NON REVERSING	SPST	SINGLE POLE SINGLE THROW
GALV	GALVANIZED	SS	STAINLESS STEEL
GD	GAS DETECTORS	SSRV	SOLID STATE REDUCED VOLTAGE STARTER
GFI	GROUND FAULT INTERRUPTER	ST	SHUNT TRIP
GFP	GROUND FAULT PROTECTION	STA	STATION
GND OR G	GROUND	STL	STEEL
HH	HANDHOLE	STP	SHIELDED TWISTED PAIR
HOA	HAND/OFF/AUTO	STR	STARTER
HTR	HEATER	STT	SHIELDED TWISTED TRIPLET
IC	INTERRUPTING CURRENT	SV	SOLENOID VALVE
IN OR " "	INCHES OR INCH	SW	SWITCH
IND	INDICATING	SWBD	SWITCHBOARD
INST	INSTANTANEOUS	TB	TERMINAL BOX
INSTR	INSTRUMENT	TEL	TELEPHONE
INTLK	INTERLOCK	TEMP	TEMPERATURE
JB OR J	JUNCTION BOX, CONDULET OR FITTING AS REQUIRED BY NEC. UNLESS OTHERWISE NOTED	TERM	TERMINAL
		TM	TELEMETRY
		TS	TEMPERATURE SWITCH
		TS2W	TWO SPEED TWO WINDING
		TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
		TW/SH	TWISTED SHIELDED
		TYP	TYPICAL
		UG	UNDERGROUND
		UON	UNLESS OTHERWISE NOTED
		V	VOLTS
		W	WATTS
		W/O	WITHOUT
		WP	WEATHERPROOF
		XFMR	TRANSFORMER
		XP	EXPLOSION PROOF
		ZS	POSITION SWITCH OR LIMIT SWITCH
		3W	THREE WIRE
		4W	FOUR WIRE

PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

PROGRESS: PDR SUBMITTAL
SUBMITTAL DATE: xx/xx/19
PROJECT MANAGER: P. GIORI
DESIGNED BY: J. MORAES
DRAWN BY: CAD
CHECKED BY: J. MORAES

NOT FOR CONSTRUCTION

M-P-A
MORAES / PHAM & ASSOCIATES
2131 Palomar Airport Rd. #120
Carlsbad, CA 92011

CSD
Crestline Sanitation District

Crestline Sanitation District
24516 Lake Drive, (P.O. Box 3395)
Crestline, California 92325-3395
909.338.1751 Fax 909.338.5306

CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER
AND DEWATERING BUILDING IMPROVEMENTS

STANDARD ELECTRICAL SYMBOLS AND ABBREVIATIONS

GE-1

PROJECT NO.

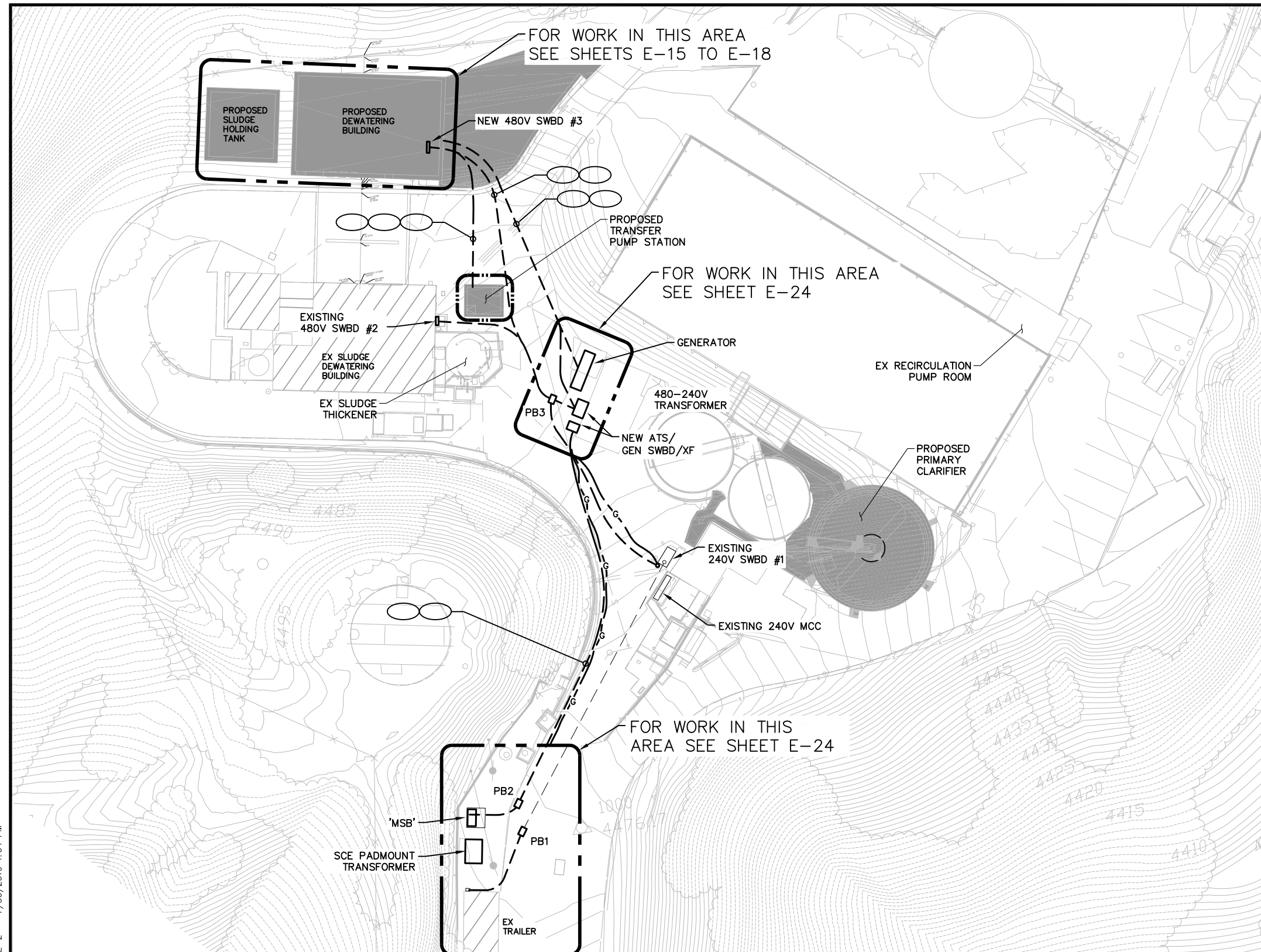
11652

DWG. NO. X OF XX

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

NOTES:

① .



PLAN
SCALE: 1"=20'

PRELIMINARY DESIGN
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REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS:	PDR SUBMITTAL
SUBMITTAL DATE:	xx/xx/19
PROJECT MANAGER:	P. GIORI
DESIGNED BY:	J. MORAES
DRAWN BY:	CAD
CHECKED BY:	J. MORAES

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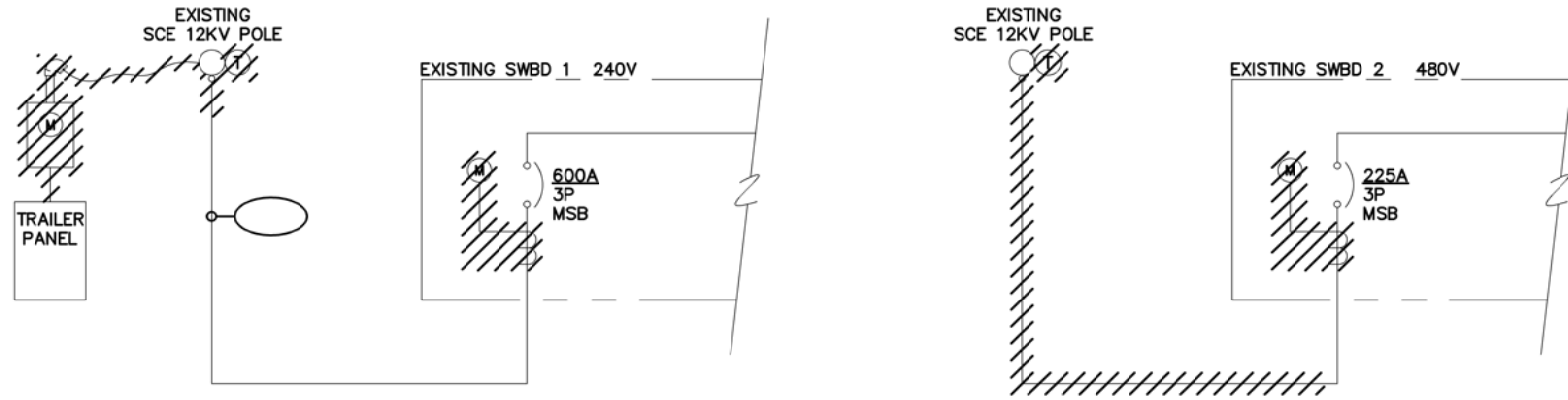
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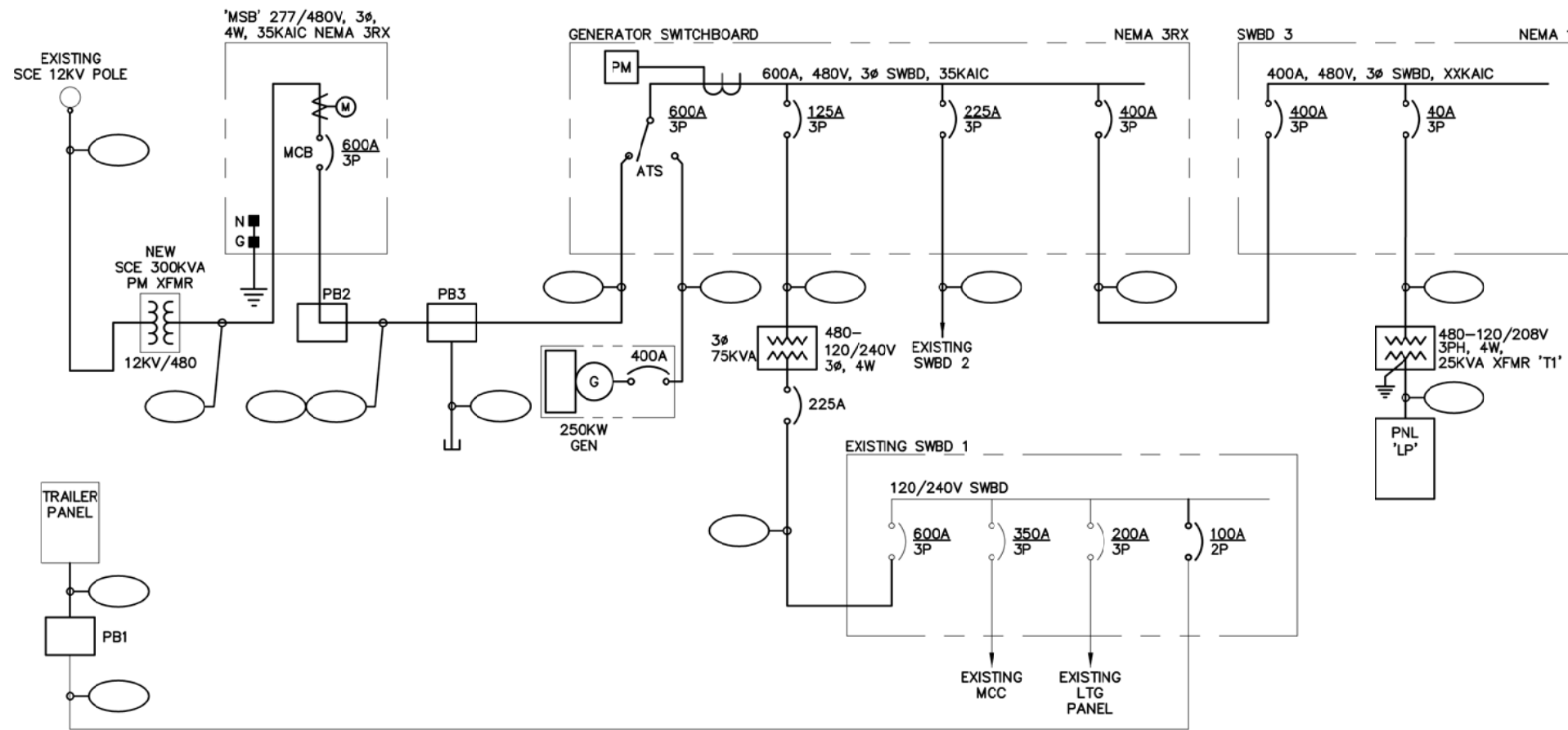
CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS

ELECTRICAL SITE PLAN

E-2
PROJECT NO.
11652
DWG. NO. ____ OF XX



SINGLE LINE DIAGRAM – DEMO



SINGLE LINE DIAGRAM – REVISED

_____ EXISTING
 _____ NEW
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CRESTLINE SANITATION DISTRICT
 HUSTON CREEK WWTP PRIMARY CLARIFIER
 AND DEWATERING BUILDING IMPROVEMENTS

E-3
 PROJECT NO.
 11652

SINGLE LINE DIAGRAM 1

DWG. NO. X OF XX

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

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LIGHTING FIXTURE SCHEDULE

SYMBOL	TAG	DESCRIPTION	FIXTURE WATTS VOLTAGE	LAMP TYPE	MOUNTING	MANUFACTURER
				NO. OF LAMPS WATTS		CATALOG NO.
	A1	4' LED FIXTURE WITH LED DRIVER AN SURGE PROTECTION. REINFORCED FIBERGLASS HOUSING. IMPACT RESISTANT, UV RESISTANT ACRYLIC, CLEAR DEEP LENS. FULLY GASKETED. UL WET LOCATION LISTED. SURFACE MOUNTED TO HARD CEILING.	42W 120VAC	LED 42W	SURFACE	COLUMBIA LIGHTING LXEM4-40ML-RFP-EU
	A2	SIMILAR TO FIXTURE TYPE 'A' EXCEPT WITH INTEGRAL EMERGENCY BATTERY BACKUP.	42W 120VAC	LED 42W	SURFACE	COLUMBIA LIGHTING LXEM4-40ML-RFP-EU-ELL14
	A3	SIMILAR TO FIXTURE TYPE 'A2' EXCEPT WITH WALL MOUNT ACCESSORIES.	42W 120VAC	LED 42W	WALL	COLUMBIA LIGHTING LXEM4-40ML-RFP-EU-ELL14-XE45MB
	B1	1'X4' LED FIXTURE WITH LED DRIVER AND SURGE PROTECTION. RECESSED MOUNTED IN HARD LID CEILING. UL LISTED FOR DAMP LOCATIONS.	37W 120VAC	LED 37W	RECESSED	COLUMBIA LIGHTING LWC4-40LW-EU-PAF
	C1	LED AREA LIGHT LUMINAIRE WITH FULL SPECTRUM TYPE 5 DISTRIBUTION. HEAT & IMPACT RESISTANT GLASS LENS WITH WIRE GUARD. DIE-CAST ALUMINUM LAMP HOUSING & ADAPTER WITH EPOXY POWDER COAT, SILICONE GASKETS AND STAINLESS STEEL EXTERNAL HARDWARE. FACTORY SEALED. UL WET LOCATION LISTED. PENDANT MOUNTED.	62W 120VAC	LED 62W	PENDANT	EATON CROUSE-HINDS PVM7L-3A-G/UNV1-S831-S891
	D1	LED WALL PACK WITH DRIVER AND SURGE PROTECTION. ONE PIECE DIE-CAST ALUMINUM HOUSING, HIGH IMPACT POLYCARBONATE LENS, U.L. LISTED FOR WET LOCATIONS. COLOR DARK BRONZE.	71W 120VAC	LED 71W	WALL	LITHONIA LMC-30LU-3K-4-1-WH DARK BRONZE
	E1	LED EXIT SIGN WITH HEAVY-DUTY, CORROSION-PROOF, THERMOPLASTIC HOUSING AND HEAVY-DUTY POLYCARBONATE CLEAR HOUSING LENS. UNIVERSAL MOUNTING AND UNIVERSAL CHEVRONS. RED LETTERS ON WHITE HOUSING.	2.6W 120VAC	LED 2.6W	WALL	LITHONIA WLTE-W-1-R-EL
	E2	EMERGENCY LIGHT, 6V SELF CONTAINED NI-CAD BATTERY. WHITE, HEAVY-DUTY POLYCARBONATE HOUSING AND POLYCARBONATE CLEAR HOUSING LENS WITH LINEAR PATTERN LED LAMPS. HOUSING SHALL BE SEALED, GASKETED AND CORROSION-RESISTANT. 90 MINUTES OF ILLUMINATION MIN. SELF-DIAGNOSTICS AND AUDIBLE FAILURE INDICATION. 120V, UL LISTED	20W 120VAC	LED 20W	WALL	LITHONIA INDX618-W-LP05VS-PREM WHITE

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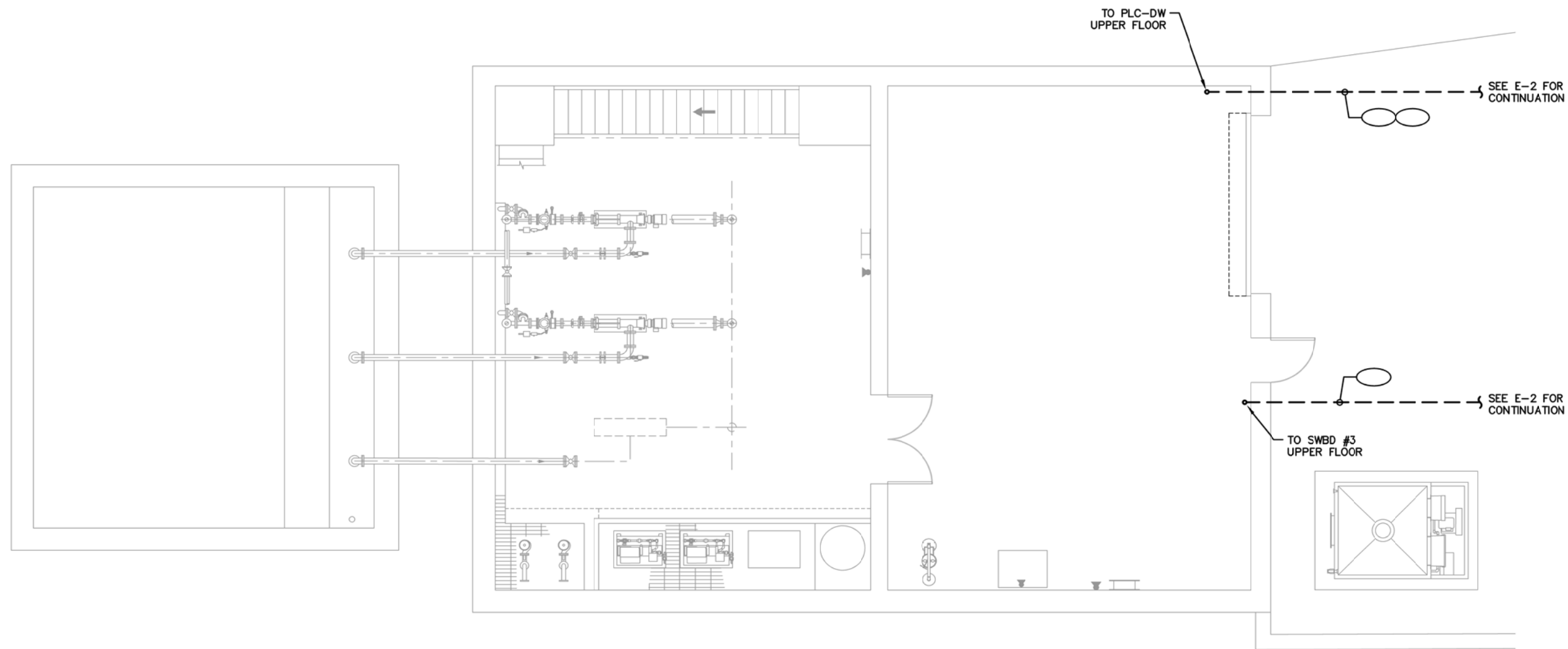
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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
 SCHEDULES 2

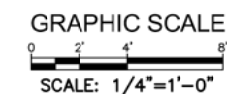
E-6
 PROJECT NO.
 11652
 DWG. NO. X OF XX

NOTES:

① .



PLAN
SCALE: 1/4"=1'-0"



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REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS: PDR SUBMITTAL
 SUBMITTAL DATE: xx/xx/19
 PROJECT MANAGER: P. GIORI
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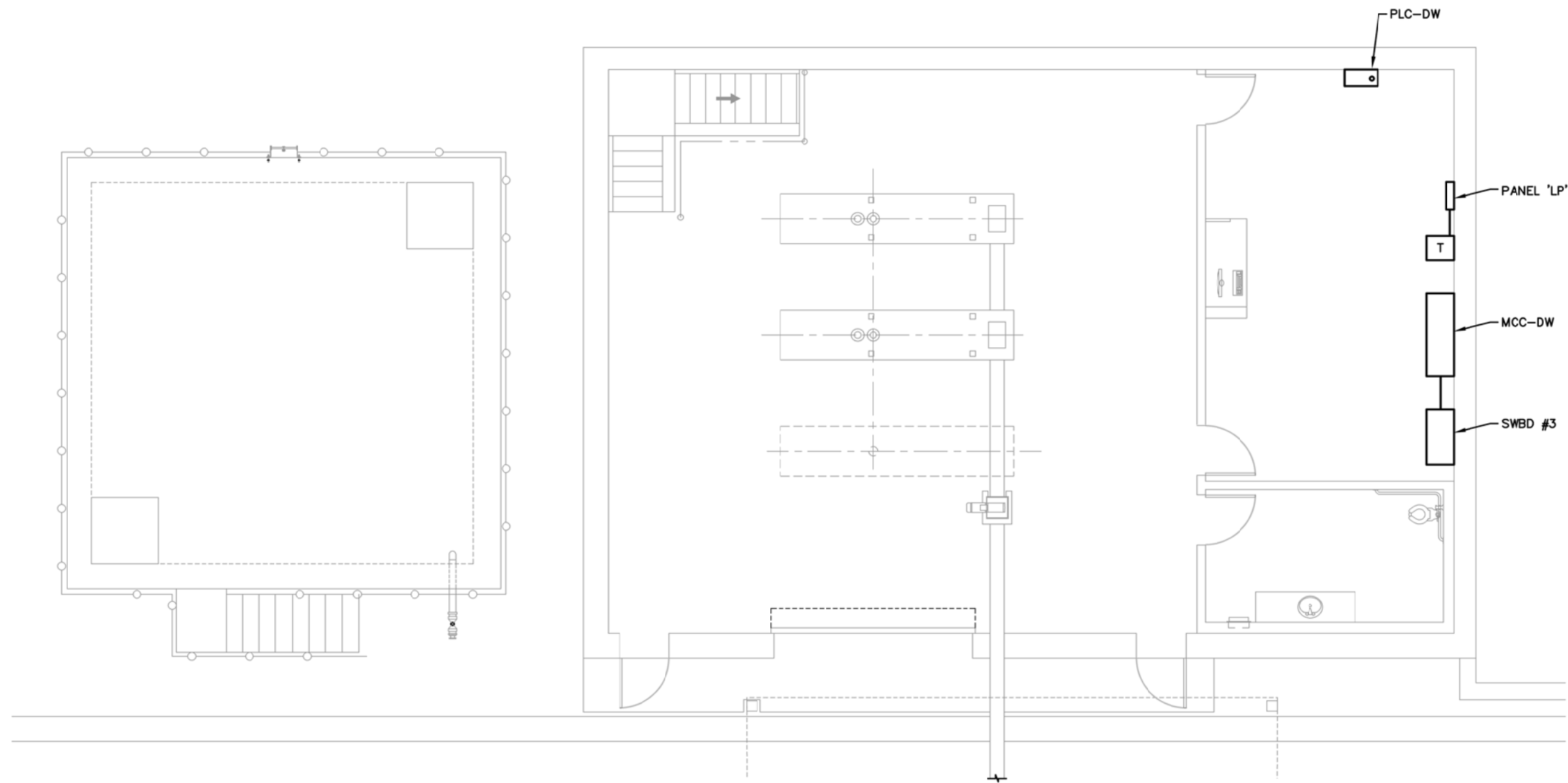
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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
 DEWATERING BUILDING LOWER FLOOR
 POWER AND CONTROL PLAN

E-15
 PROJECT NO.
 11652
 DWG. NO. X OF XX

NOTES:

① .



PLAN
SCALE: 1/4"=1'-0"

GRAPHIC SCALE
0 2 4 8'
SCALE: 1/4"=1'-0"



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REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS: PDR SUBMITTAL
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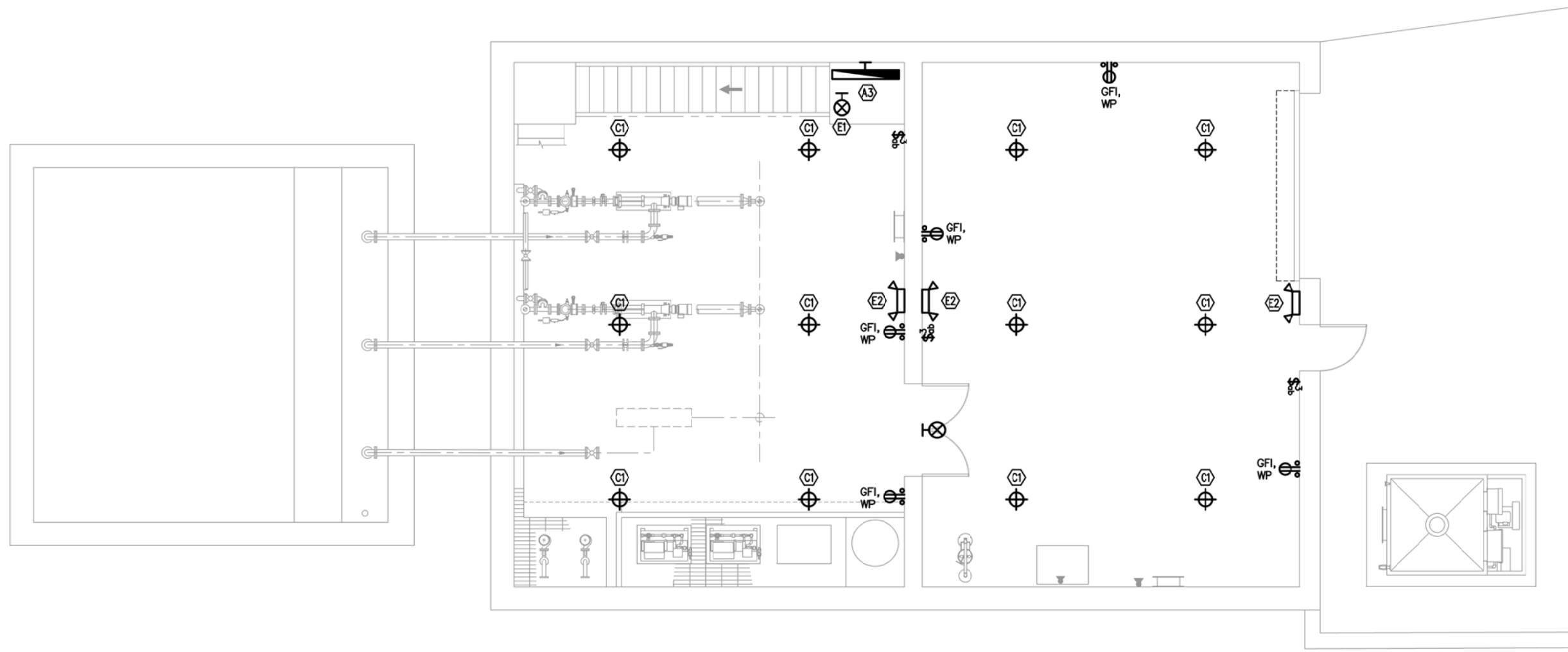
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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
 DEWATERING BUILDING UPPER FLOOR
 POWER AND CONTROL PLAN

E-16
 PROJECT NO. 11652
 DWG. NO. X OF XX

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PLAN
SCALE: 1/4"=1'-0"

GRAPHIC SCALE
SCALE: 1/4"=1'-0"

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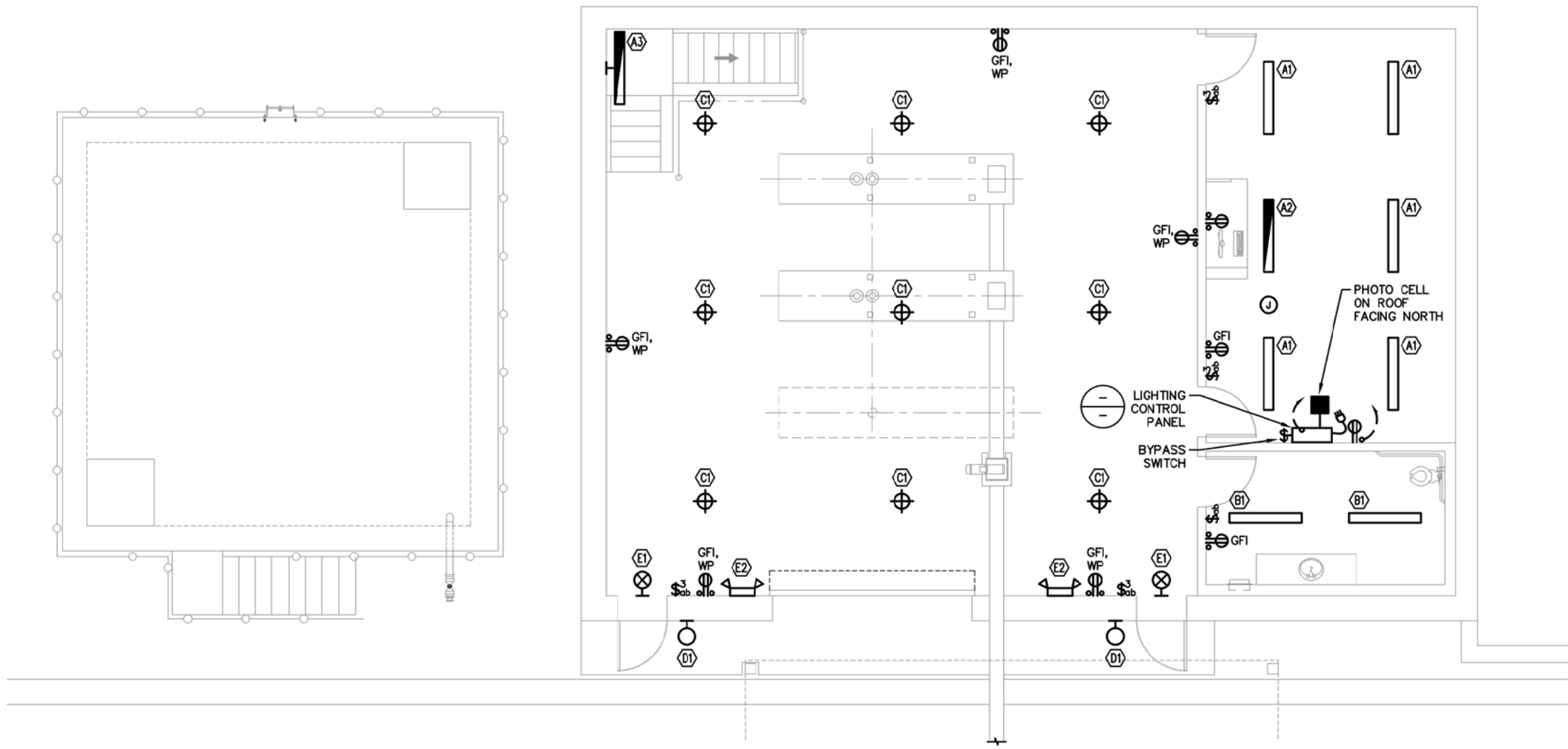
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HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS

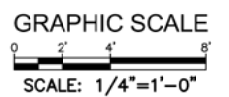
DEWATERING BUILDING LOWER FLOOR
 LIGHTING AND RECEPTACLE PLAN

E-17
 PROJECT NO. 11652
 DWG. NO. X OF XX

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PLAN
SCALE: 1/4"=1'-0"



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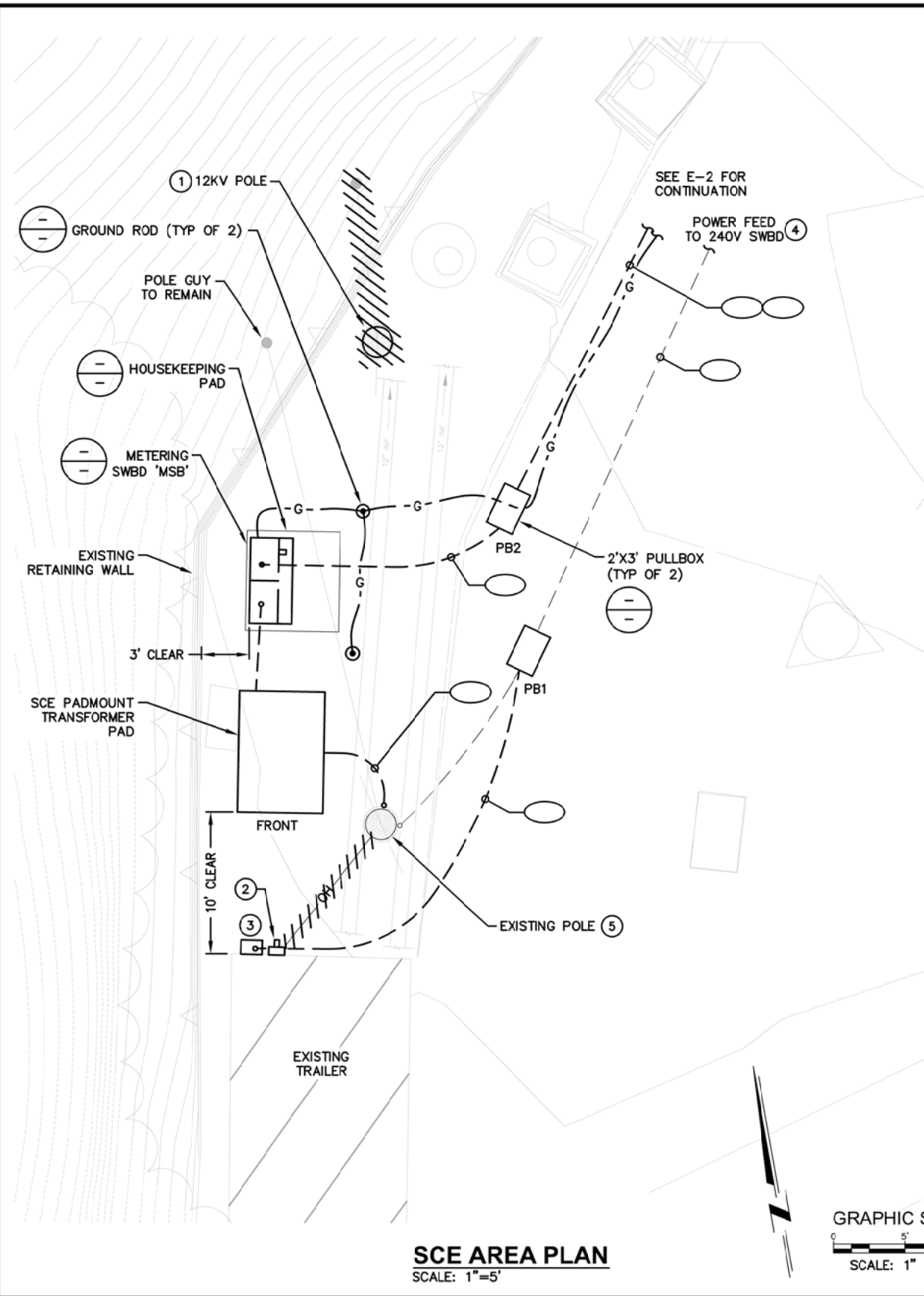
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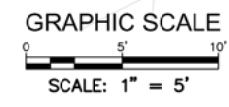
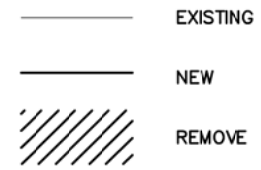
CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
 DEWATERING BUILDING UPPER FLOOR LIGHTING AND RECEPTACLE PLAN

E-18
 PROJECT NO. 11652
 DWG. NO. X OF XX

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- NOTES:**
- POLE AND 480V POLE TOP TRANSFORMERS TO BE REMOVED BY SCE. CUT CONDUIT RISER BELOW GRADE AND ABANDON IN PLACE.
 - DEMO SCE METER AND OVERHEAD GOOSENECK. SALVAGE METER TO SCE.
 - EXISTING 120/240V PANEL TO REMAIN. RE-FEED FROM 240 VOLT SWITCHBOARD.
 - EXISTING 3" C. TO 240V SWITCHBOARD. REMOVE EXISTING CONDUCTORS. RE-ALIGN AND EXTEND CONDUIT TO TRAILER PANELBOARD.
 - EXISTING POLE TO REMAIN AND CONVERTER TO 12KV CABLE POLE. EXISTING 240VOLT POLE TOP TRANSFORMERS TO BE REMOVED BY SCE.



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GENERATOR AREA PLAN
SCALE: 1"=5'

SCE AREA PLAN
SCALE: 1"=5'

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS: PDR SUBMITTAL
 SUBMITTAL DATE: xx/xx/19
 PROJECT MANAGER: P. GIORI
 DESIGNED BY: J. MORAES
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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS

ENLARGED ELECTRICAL PLANS

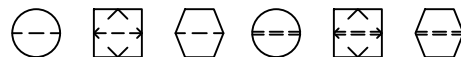
E-24
 PROJECT NO. 11652
 DWG. NO. ____ OF XX

INSTRUMENT TAG IDENTIFICATION

	PRIMARY LOCATION (b) NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNT	AUXILIARY LOCATION (b) NORMALLY ACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS	LCP		LCP
SHARED DISPLAY, SHARED CONTROL	LCP		LCP
COMPUTER FUNCTION	LCP		LCP
PROGRAMMABLE LOGIC CONTROL	LCP		LCP

(a) DESIGNATIONS SUCH AS 100 (LOCAL CONTROL BOARD NO. 100), 200 (LOCAL CONTROL BOARD NO. 200), ETC., ARE USED WHEN NECESSARY TO SPECIFY INSTRUMENT OR FUNCTION LOCATION.

(b) NORMALLY INACCESSIBLE OR BEHIND-THE-PANEL DEVICES OR FUNCTIONS ARE DEPICTED BY USING THE SAME SYMBOLS BUT WITH DASHED HORIZONTAL BARS, I.E.



SINGLE INSTRUMENT OR OTHER COMPONENT HAVING MULTIPLE FUNCTIONS

SOFTWARE OR LOGIC RESIDENT IN DISTRIBUTED CONTROL SYSTEM (DCS) AT PROGRAMMABLE LOGIC CONTROLLER (PLC) XXX. SEE ASSOCIATED LOGIC DIAGRAMS.

PANEL MOUNTED PILOT LIGHT WITH PANEL NUMBER DESIGNATION (i.e. XXX = 100, 200, ETC.).

INSTRUMENT PANEL MOUNTED WITH COMPUTING OR CONVERTING FUNCTION

CONVERT E - VOLTAGE H - HYDRAULIC
 I - CURRENT O - ELECTROMAGNETIC, SONIC
 P - PNEUMATIC R - RESISTANCE (ELECT.)
 A - ANALOG D - DIGITAL
 B - BINARY PF - PULSE FREQUENCY

COMPUTE SUMMING AVERAGING
 SUBTRACTOR RATIO
 MULTIPLYING DIFFERENCE
 DIVIDING HIGH SELECTING
 ROOT EXTRACTION LOW SELECTING
 PROPORTIONAL INTEGRAL
 DERIVATIVE

XX DESIGNATIONS OF CONTROL FUNCTIONS ASSOCIATED INSTRUMENT OR OTHER COMPONENTS.
 AC - AUTO/CLOSE OL - OVERLOAD (MOTOR)
 AHC - AUTO/HOLD/CLOSE OO - ON/OFF
 AM - AUTO/MANUAL OCA - OPEN/CLOSE/AUTO
 C - CLOSE OSC - OPEN/STOP/CLOSED
 DEV - DEVIATION POT - POTENTIOMETER
 DUR - DURATION RST - RESET
 ES - EMERGENCY STOP RL - RAISE/LOWER
 HOA - HAND/OFF/AUTO RSL - RAISE/STOP/LOWER
 HOR - HAND/OFF/REMOTE SD - SHUTDOWN
 LOS - LOCKOUT STOP SEL - SELECT
 LR - LOCAL/REMOTE SP - SET POINT
 N.C. - NORMALLY CLOSED SR - START/RESET
 N.O. - NORMALLY OPEN SS - STOP/START
 MOA - MANUAL/OFF/AUTO WA - WARNING ALARM
 O - OPEN
 OL - OVERLOAD (MOTOR)

ISA FUNCTION IDENTIFICATION TABLE

FIRST-LETTER		SUCCEEDING-LETTERS		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A ANALYSIS		ALARM		
B BURNER, COMBUSTION				
C CONDUCTIVITY			CONTROL	CLOSED
D DENSITY	DIFFERENTIAL			
E VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F FLOW RATE	RATIO (FRACTION)			
G GAGE		GLASS, VIEWING DEVICE		
H HAND				HIGH
I CURRENT (ELECTRICAL)		INDICATE		
J POWER	SCAN			
K TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L LEVEL		LIGHT		LOW
M MOTOR, MOISTURE	MOMENTARY			MIDDLE, INTERMEDIATE
N TORQUE		ISOLATE	ISOLATOR	
O USER SPECIFIED		ORIFICE, RESTRICTION		OPEN
P PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q QUANTITY	INTEGRATE, TOTALIZE			
R RADIATION		RECORD		
S SPEED, FREQUENCY	SAFETY		SWITCH TRANSMIT	
T TEMPERATURE			MULTIFUNCTION	MULTIFUNCTION
U MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOUVER	
W WEIGHT, FORCE		WELL		
X RUN	X AXIS		COMPUTE, CONVERT	
Y EVENT, STATE OR PRESENCE	Y AXIS		DRIVER, ACTUATOR, FINAL	
Z POSITION, DIMENSION	Z AXIS		CONTROL ELEMENT	

TYPICAL FORMAT:

TIC-1 - INSTRUMENT IDENTIFICATION OR TAG NUMBER
 T - FUNCTIONAL IDENTIFICATION
 I - FIRST-LETTER
 IC - SUCCEEDING-LETTER(S)
 1 - LOOP NUMBER

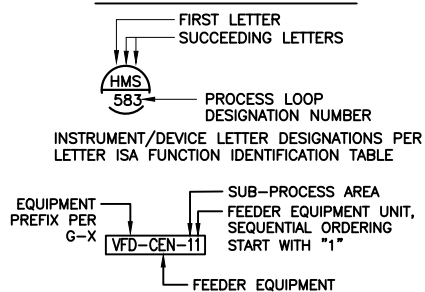
EXPANDED FORMAT:

10-PAH-1A - TAG NUMBER
 10 - OPTIONAL PREFIX
 A - OPTIONAL SUFFIX
 UNDEFINED INTERLOCK DEVICE
 ETHERNET SWITCH

INPUT/OUTPUT INTERFACE SYMBOLS

= DIGITAL OUTPUT = ANALOG OUTPUT
 = DIGITAL INPUT = ANALOG INPUT

INSTRUMENT/DEVICE TAG NAME DESIGNATIONS



PROCESS AND SIGNAL LINE SYMBOLS

- PROCESS LINE (1)
- INSTRUMENT OR CONNECTION TO PROCESS
- ELECTRIC SIGNAL
- ELECTRIC PULSE FREQUENCY SIGNAL (0-100 CYCLE/SEC., 0-150 PULSE/MIN., etc.)
- ELECTRIC PULSE DURATION SIGNAL (15 SEC., 3/12 SEC = 0 %, etc.)
- PNEUMATIC SYMBOL (2)
- HYDRAULIC SYMBOL
- CAPILLARY TUBE
- ELECTROMAGNETIC OR SONIC SIGNAL (3)
- INTERNAL SYSTEM LINK (SOFTWARE OR DATA LINK)
- MECHANICAL LINK
- CONNECTING LINES
- FIELD INSTRUMENT/DEVICE
- CONTINUED ON DWG N-___ AT A SIMILAR ARROW WITH LETTER X.
- CONTINUED ON MULTIPLE SHEETS
- PROCESS INTERFACE CONNECTION POINT NOT SHOWN IN DRAWINGS

(1) REFER TO DWG G-3 FOR PIPING SERVICE SCHEDULE.

(2) THE PNEUMATIC SIGNAL SYMBOL APPLIES TO A SIGNAL NOT A SUPPLY SOURCE. USING ANY AS A MEDIUM. IF A GAS OTHER THAN AIR IS USED, THE GAS IS IDENTIFIED BY NOTE ON THE SIGNAL.

(3) ELECTROMAGNET PHENOMENA INCLUDE HEAT, RADIO WAVES, NUCLEAR RADIATION AND LIGHT.

VALVE AND ACTUATOR SYMBOLS

- GATE VALVE
- PLUG VALVE
- BALL VALVE
- BUTTERFLY VALVE
- CHECK VALVE
- GLOBE VALVE
- AIR RELEASE VALVE
- VALVE WITH DIAPHRAGM OPERATOR
- SOLENOID VALVE
- VALVE WITH MOTOR OPERATOR

DEVICE SYMBOLS

- QUICK CONNECT
- REDUCER OR INCREASER
- DRAIN
- MANUAL AIR VENT
- BLIND FLANGE CAP OR PLUG
- STRAINER
- WATER SURFACE ELEVATION
- SITE GLASS
- FLOW METER
- STOP GATE
- ULTRA SONIC LEVEL SENSOR

MECHANICAL EQUIPMENT SYMBOLS

- POLYMER PUMP
- PROGRESSIVE CAVITY PUMP
- CENTRIFUGAL PUMP
- SUMP PUMP
- COMPRESSOR
- EXHAUST/SUPPLY FAN
- MIXER
- CAKE CONVEYOR
- SCREW PRESS

GENERAL NOTES

- ADDITIONAL INSTRUMENTATION AND CONTROL SYMBOLS MAY BE USED AS REQUIRED. SYMBOLS AND NOMENCLATURE ARE BASED ON ISA STANDARDS S5.1, S5.2, S5.4.
- SEE ASSOCIATED ELECTRICAL AND MECHANICAL SYMBOL SHEETS FOR ADDITIONAL SYMBOLS AND ABBREVIATIONS.
- FOR PIPE SIZES, MATERIAL, AS WELL AS DETAILS OF METER COUPLING AND OTHER MECHANICAL EQUIPMENT (E.G. VALVE, PUMP ETC.) SEE PROCESS AND INSTRUMENTATION DIAGRAMS, MECHANICAL DRAWINGS AND SPECIFICATIONS.
- POWER SUPPLIES FOR LOOPS OR SYSTEMS SHALL BE FURNISHED BY THE INSTRUMENTATION MANUFACTURER TO MEET THE PARTICULAR CHARACTERISTICS (E.G. VOLTAGE AND CURRENT REQUIREMENTS) OF COMPONENTS IN EACH LOOP OR SYSTEM.
- THOSE ITEMS IDENTIFIED BY AN ASTERISK SHALL BE PROVIDED BY THE SYSTEM PROCESS EQUIPMENT SUPPLIER.
- P&ID'S DO NOT DISTINGUISH NEW FROM EXISTING MECHANICAL AND STRUCTURAL SYSTEMS. REFER TO 'M' SHEETS.

PRELIMINARY DESIGN
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P:\01\Engineering\Crestline SD\11652 - Houston Creek Dewatering Bldg\06\CAD\11652 SH104 GI-1 7/29/2019 3:06 PM

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS:	PDR SUBMITTAL
SUBMITTAL DATE:	xx/xx/19
PROJECT MANAGER:	P. GIORI
DESIGNED BY:	P. GIORI
DRAWN BY:	N. HUNTER
CHECKED BY:	N. HARPER

PLANS PREPARED BY:

DUDEK

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CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS

P&ID SYMBOLS AND ABBREVIATIONS

GI-1

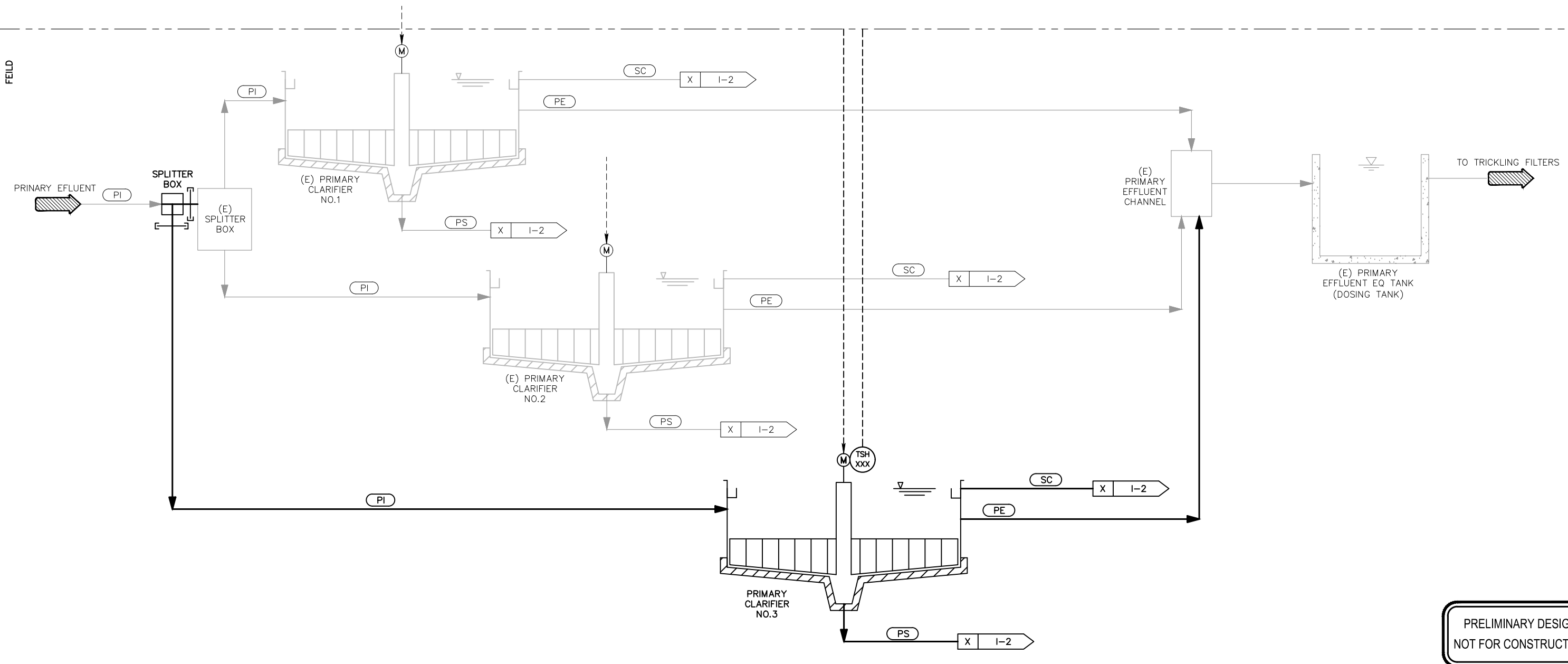
PROJECT NO.
11652

DWG. NO. **104** OF **114**

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MCC-C

FEILD



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 605 Third Street Encinitas, CA 92024
 760.942.5147 Fax 760.632.0164



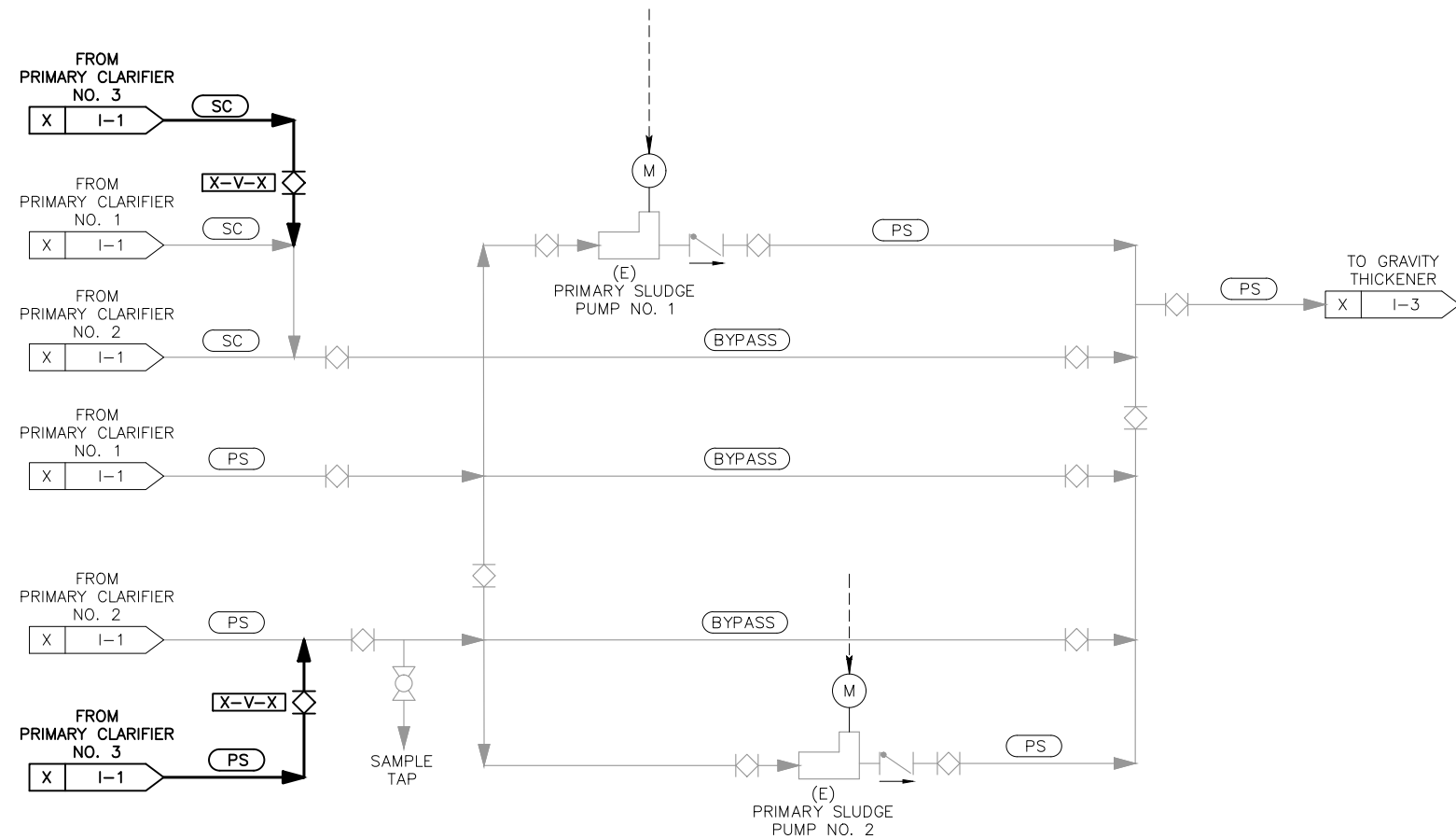
Crestline Sanitation District
 24516 Lake Drive, (P.O. Box 3395)
 Crestline, California 92325-3395
 909.338.1751 Fax 909.338.5306

CRESTLINE SANITATION DISTRICT
**HUSTON CREEK WWTP PRIMARY CLARIFIER
 AND DEWATERING BUILDING IMPROVEMENTS**
 P&ID
 PRIMARY CLARIFIERS

I-1
 PROJECT NO.
 11652
 DWG. NO. 106 OF 114

MCC-C

FEILD



PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

P:\01\Engineering\Crestline_SD\11652 - Huston Creek Dewatering Bldg\06\CAD\11652_SH107 I-2 7/29/2019 3:08 PM

PROGRESS: PDR SUBMITTAL
 SUBMITTAL DATE: xx/xx/19
 PROJECT MANAGER: P. GIORI
 DESIGNED BY: P. GIORI
 DRAWN BY: N. HUNTER
 CHECKED BY: N. HARPER



PLANS PREPARED BY:
DUDEK
 605 Third Street Encinitas, CA 92024
 760.942.5147 Fax 760.632.0164



Crestline Sanitation District
 24516 Lake Drive, (P.O. Box 3395)
 Crestline, California 92325-3395
 909.338.1751 Fax 909.338.5306

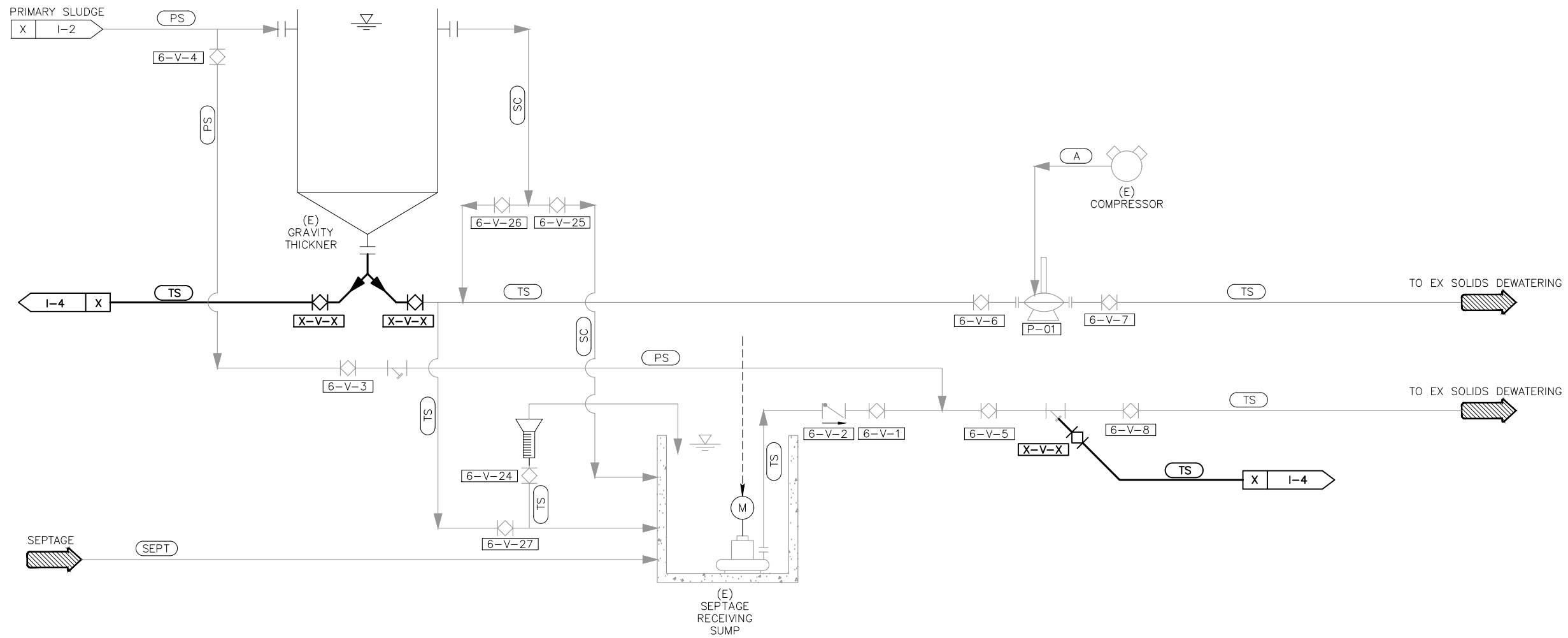
CRESTLINE SANITATION DISTRICT
HUSTON CREEK WWTP PRIMARY CLARIFIER AND DEWATERING BUILDING IMPROVEMENTS
 P&ID
 PRIMARY SLUDGE PUMPS

I-2
 PROJECT NO. 11652
 DWG. NO. 107 OF 114

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

MCC-C

FEILD



PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

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REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS: PDR SUBMITTAL
 SUBMITTAL DATE: xx/xx/19
 PROJECT MANAGER: P. GIORI
 DESIGNED BY: P. GIORI
 DRAWN BY: N. HUNTER
 CHECKED BY: N. HARPER



PLANS PREPARED BY:
DUDEK
 605 Third Street Encinitas, CA 92024
 760.942.5147 Fax 760.632.0164

CSD
 Crestline Sanitation District
 24516 Lake Drive, (P.O. Box 3395)
 Crestline, California 92325-3395
 909.338.1751 Fax 909.338.5306

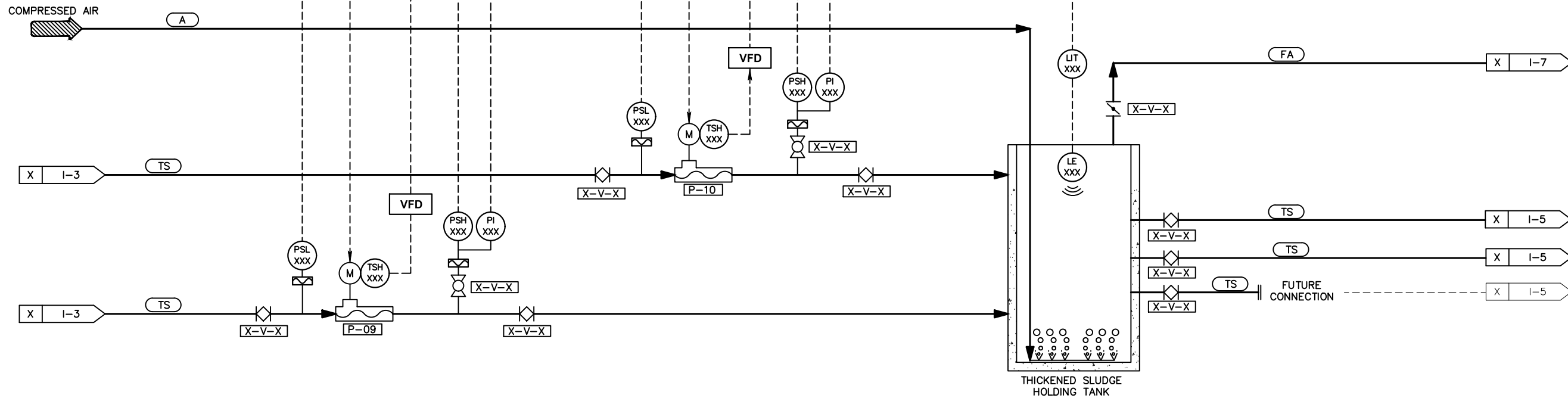
CRESTLINE SANITATION DISTRICT
**HUSTON CREEK WWTP PRIMARY CLARIFIER
 AND DEWATERING BUILDING IMPROVEMENTS**
 P&ID
 GRAVITY THICKNER

I-3
 PROJECT NO.
 11652
 DWG. NO. 108 OF 114

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MCC-C

FEILD



PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

PROGRESS: PDR SUBMITTAL
 SUBMITTAL DATE: xx/xx/19
 PROJECT MANAGER: P. GIORI
 DESIGNED BY: P. GIORI
 DRAWN BY: N. HUNTER
 CHECKED BY: N. HARPER



PLANS PREPARED BY:
DUDEK
 605 Third Street Encinitas, CA 92024
 760.942.5147 Fax 760.632.0164



Crestline
 Sanitation District
 24516 Lake Drive, (P.O. Box 3395)
 Crestline, California 92325-3395
 909.338.1751 Fax 909.338.5306

CRESTLINE SANITATION DISTRICT
**HUSTON CREEK WWTP PRIMARY CLARIFIER
 AND DEWATERING BUILDING IMPROVEMENTS**
 P&ID
**THICKENED SLUDGE TRANSFER
 PUMPS AND HOLDING TANK**

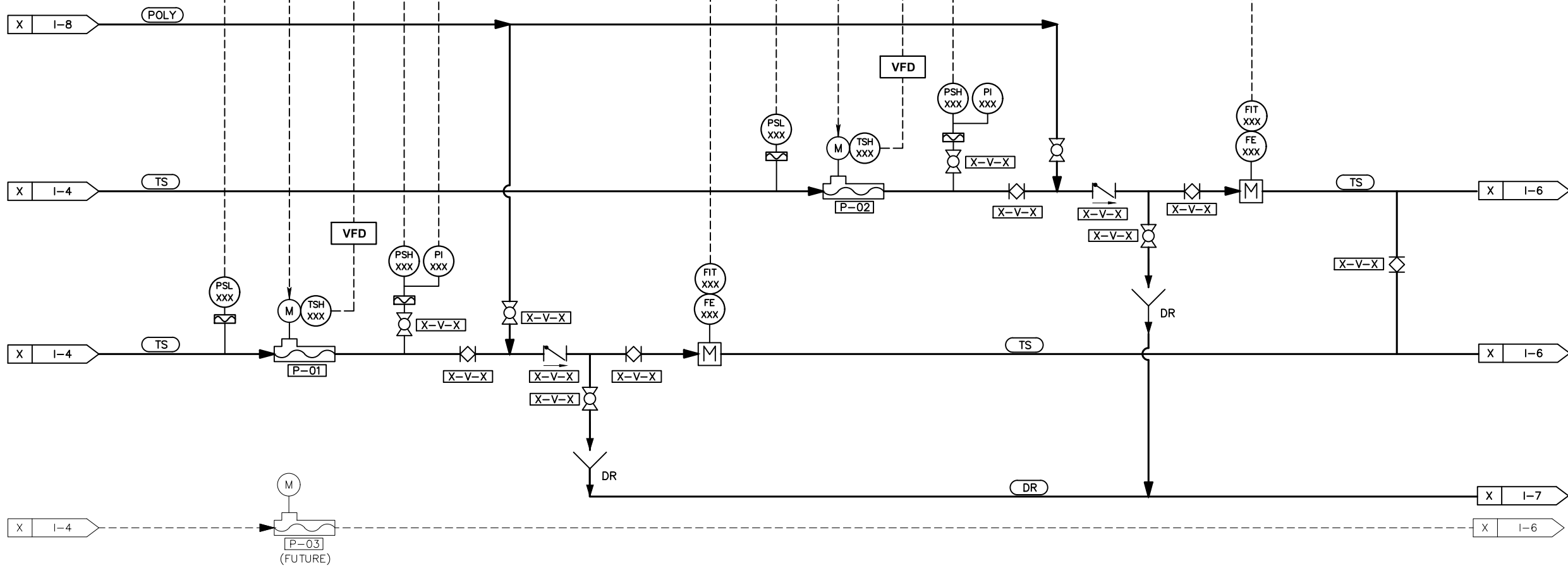
I-4
 PROJECT NO.
 11652
 DWG. NO. 109 OF 114

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

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MCC-C

FEILD



PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

PROGRESS: PDR SUBMITTAL
 SUBMITTAL DATE: xx/xx/19
 PROJECT MANAGER: P. GIORI
 DESIGNED BY: P. GIORI
 DRAWN BY: N. HUNTER
 CHECKED BY: N. HARPER



PLANS PREPARED BY:
DUDEK
 605 Third Street Encinitas, CA 92024
 760.942.5147 Fax 760.632.0164



Crestline Sanitation District
 24516 Lake Drive, (P.O. Box 3395)
 Crestline, California 92325-3395
 909.338.1751 Fax 909.338.5306

CRESTLINE SANITATION DISTRICT
**HUSTON CREEK WWTP PRIMARY CLARIFIER
 AND DEWATERING BUILDING IMPROVEMENTS**

P&ID
THICKENED SLUDGE PUMPING

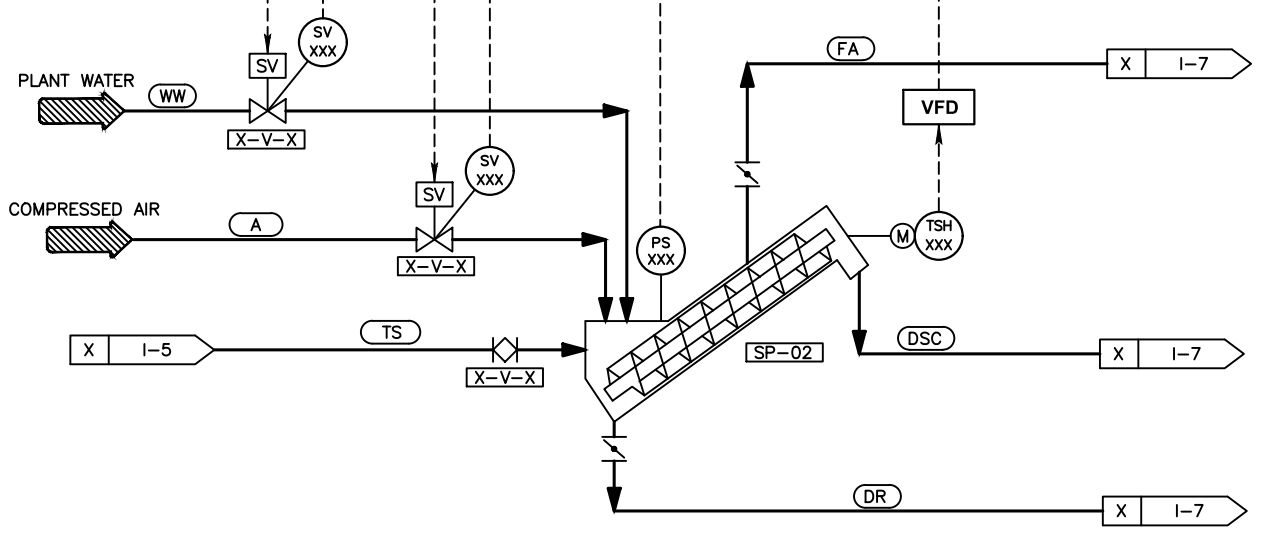
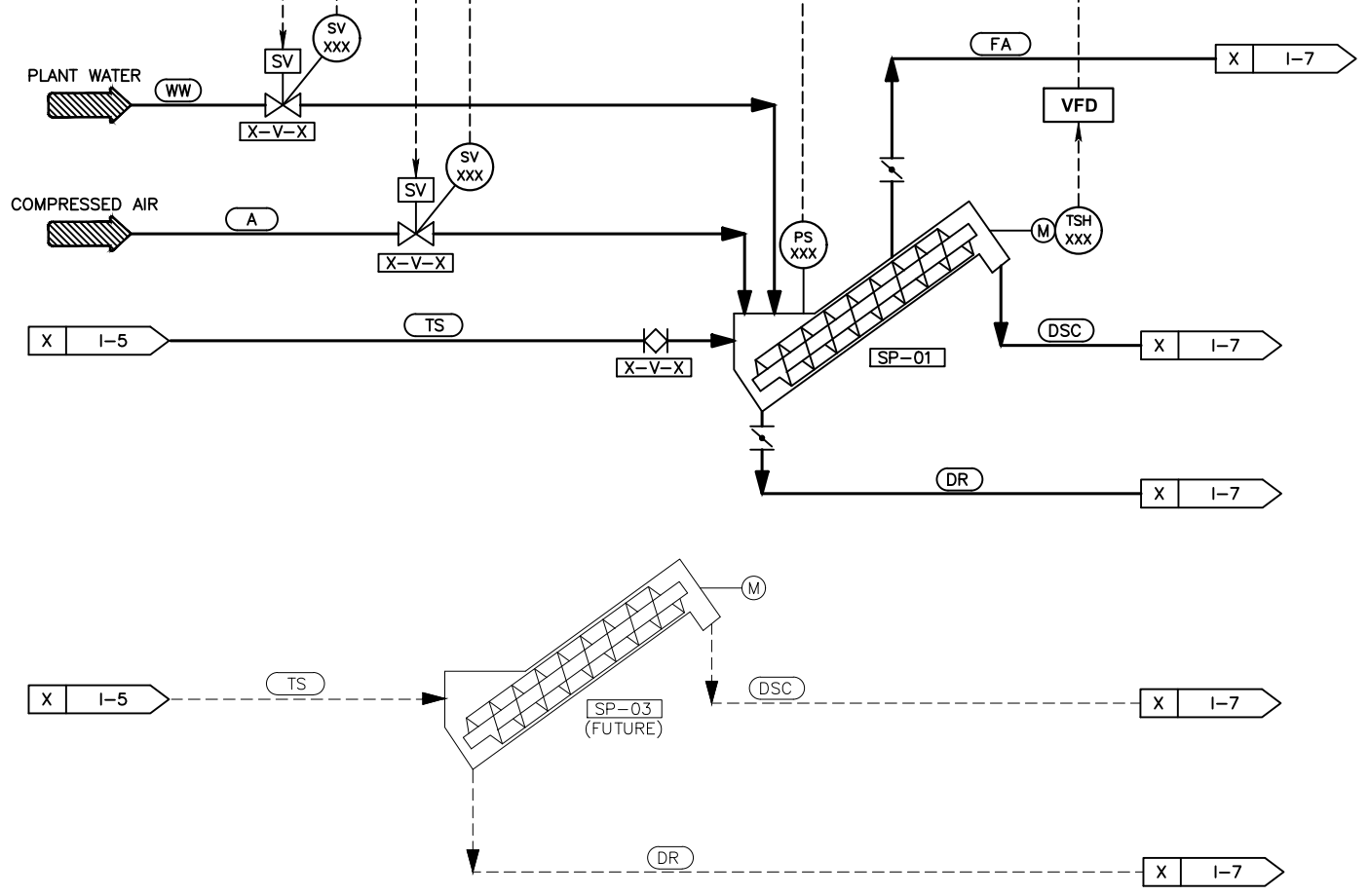
I-5
 PROJECT NO.
 11652
 DWG. NO. 110 OF 114

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

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MCC-C

FEILD



PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS: PDR SUBMITTAL
 SUBMITTAL DATE: xx/xx/19
 PROJECT MANAGER: P. GIORI
 DESIGNED BY: P. GIORI
 DRAWN BY: N. HUNTER
 CHECKED BY: N. HARPER



PLANS PREPARED BY:
DUDEK
 605 Third Street Encinitas, CA 92024
 760.942.5147 Fax 760.632.0164



Crestline
 Sanitation District
 24516 Lake Drive, (P.O. Box 3395)
 Crestline, California 92325-3395
 909.338.1751 Fax 909.338.5306

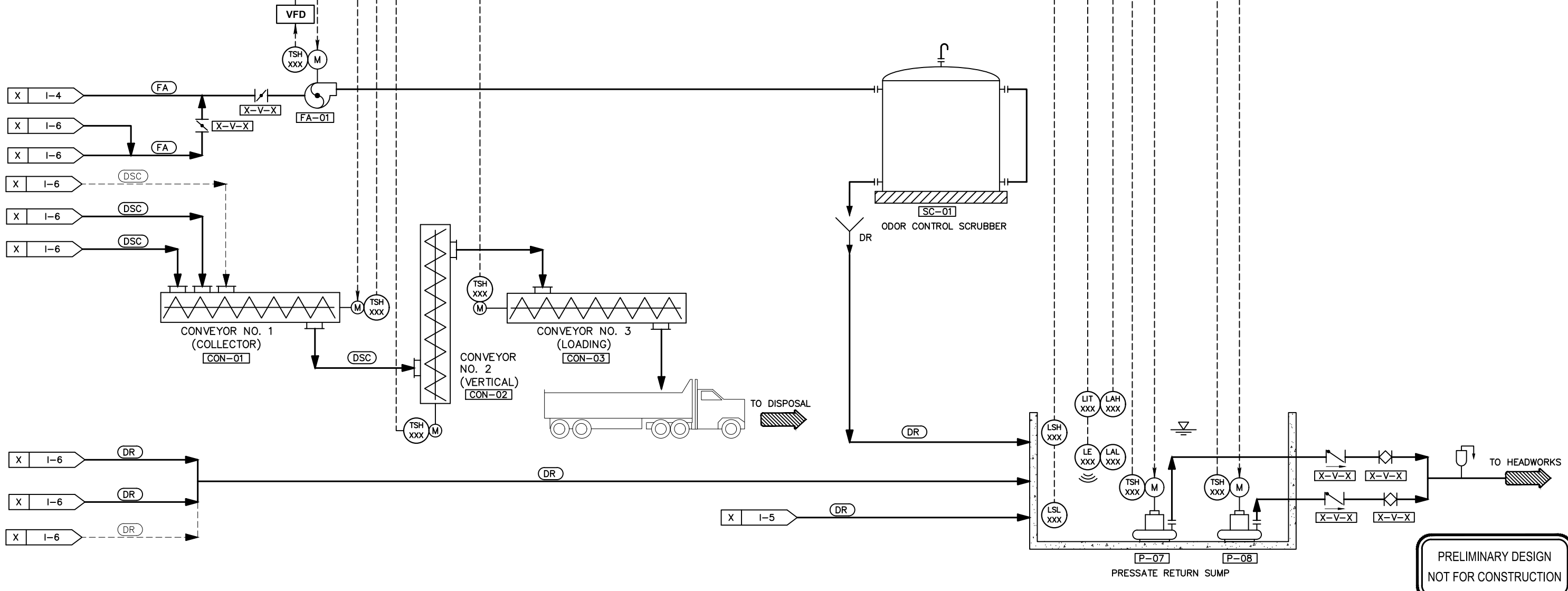
CRESTLINE SANITATION DISTRICT
**HUSTON CREEK WWTP PRIMARY CLARIFIER
 AND DEWATERING BUILDING IMPROVEMENTS**
 P&ID
 DEWATERING EQUIPMENT

I-6
 PROJECT NO.
 11652
 DWG. NO. 111 OF 114

P:\01\Engineering\Crestline_SD\11652 - Houston Creek Dewatering Bldg\06\CAD\11652_SH112_I-7 7/29/2019 3:13 PM

MCC-C

FEILD



PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

REV	DESCRIPTION	ENGR	DATE	APPD	DATE

PROGRESS: PDR SUBMITTAL
 SUBMITTAL DATE: xx/xx/19
 PROJECT MANAGER: P. GIORI
 DESIGNED BY: P. GIORI
 DRAWN BY: N. HUNTER
 CHECKED BY: N. HARPER



PLANS PREPARED BY:
DUDEK
 605 Third Street Encinitas, CA 92024
 760.942.5147 Fax 760.632.0164



Crestline Sanitation District
 24516 Lake Drive, (P.O. Box 3395)
 Crestline, California 92325-3395
 909.338.1751 Fax 909.338.5306

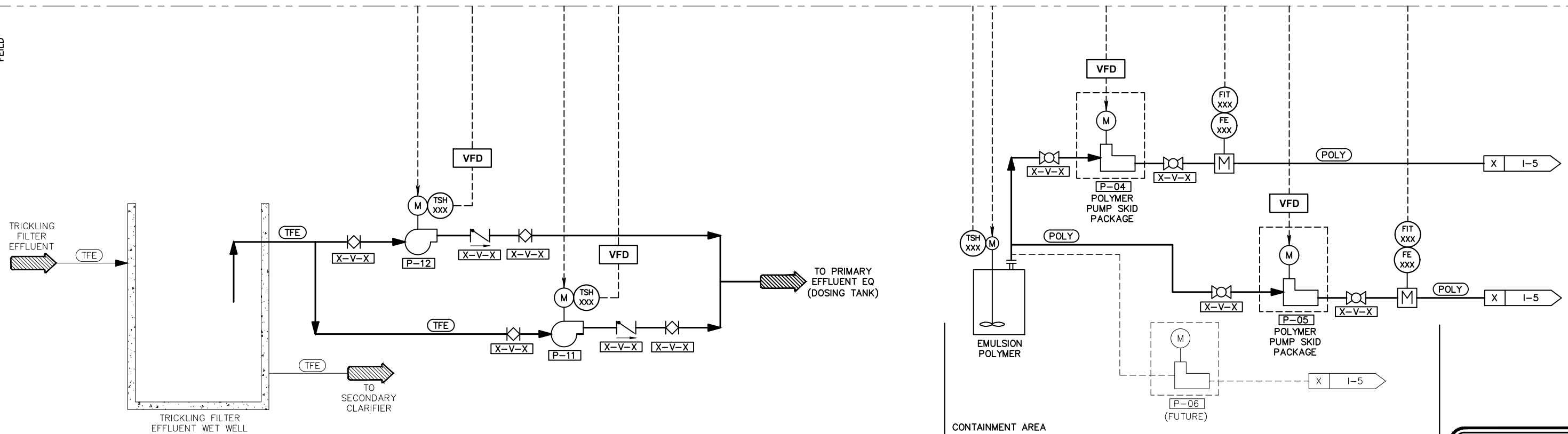
CRESTLINE SANITATION DISTRICT
**HUSTON CREEK WWTP PRIMARY CLARIFIER
 AND DEWATERING BUILDING IMPROVEMENTS**
 P&ID
SLUDGE DISPOSAL AND ODOR CONTROL

I-7
 PROJECT NO. 11652
 DWG. NO. 112 OF 114

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MCC-C

FEILD



PRELIMINARY DESIGN
NOT FOR CONSTRUCTION

PROGRESS: PDR SUBMITTAL
 SUBMITTAL DATE: xx/xx/19
 PROJECT MANAGER: P. GIORI
 DESIGNED BY: P. GIORI
 DRAWN BY: N. HUNTER
 CHECKED BY: N. HARPER



PLANS PREPARED BY:
DUDEK
 605 Third Street Encinitas, CA 92024
 760.942.5147 Fax 760.632.0164



Crestline Sanitation District
 24516 Lake Drive, (P.O. Box 3395)
 Crestline, California 92325-3395
 909.338.1751 Fax 909.338.5306

CRESTLINE SANITATION DISTRICT
**HUSTON CREEK WWTP PRIMARY CLARIFIER
 AND DEWATERING BUILDING IMPROVEMENTS**

P&ID
**TRICKLING FILTER RETICULATION PUMPS
 AND POLYMER SYSTEM**

I-8
 PROJECT NO.
 11652
 DWG. NO. 113 OF 114

REV	DESCRIPTION	ENGR	DATE	APPD	DATE