

STORM DRAINAGE GENERAL NOTES

- ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD PLANS OF THE CITY OF LONG BEACH, STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 2013 EDITION, STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION (SPPWC), 2013 EDITION, AMERICAN WATER WORKS ASSOCIATION (AWWA) LATEST EDITION, AMERICAN SOCIETY OF TESTING MATERIALS, CALIFORNIA BUILDING CODE/UNIFORM PLUMBING CODE/UNIFORM MECHANICAL CODE/NATIONAL ELECTRICAL CODE-2013 EDITION AND ALL OTHER FEDERAL, STATE AND LOCAL CODE APPLICABLE TO THE PROJECT.
- IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER/OWNER OR CONTRACTOR TO APPLY FOR ALL NECESSARY PERMITS REQUIRED FOR THE PROJECT.
- CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL ENVIRONMENTAL REGULATIONS AS REQUIRED IN THE NPDES AND SUSMP REGULATIONS.
- LOCATIONS SHOWN IN THE PLAN ARE DIAGRAMMATIC IN NATURE. CONTRACTOR SHALL DETERMINE THE ACTUAL LOCATION OF THE PROJECT AREA.
- CONTRACTOR IS RESPONSIBLE FOR THE TRAFFIC CONTROL SYSTEM. THE CITY INSPECTOR MAY STOP THE WORK AT ANYTIME IF THERE IS A TRAFFIC CONCERN THAT MAY CAUSE UNSAFE CONDITION FOR THE PUBLIC AND WORKERS.
- ALL WATER INSTALLATION IN THE CITY OF LONG BEACH INCLUDING PIPES, VALVES, FITTINGS AND OTHER APPURTENANCES SHALL BE IN ACCORDANCE WITH STANDARD CODES, APPROVED AND INSPECTED BY THE CITY OF LONG BEACH ENGINEERS.
- LOCATIONS AND INFORMATION OF THE EXISTING UTILITIES PROVIDED BY THE CITY OF LONG BEACH ARE THE BEST AND ONLY AVAILABLE INFORMATION THAT THE CITY HAS. CONTRACTOR IS RESPONSIBLE FOR RESEARCH AND INVESTIGATION OF ALL INFORMATION NEEDED FOR THE PROJECT.
- ALL EXCAVATIONS, BACKFILL AND COMPACTIONS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, 2013 EDITION, STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION (SPPWC), 2013. EXCAVATION, BACKFILL AND COMPACTION SHALL BE INSPECTED AND APPROVED BY THE CITY.
- HAZARDOUS MATERIALS THAT WILL BE ENCOUNTERED OR EXCAVATED WILL BE HANDELED AS REQUIRED BY THE HOLLYWOOD PARK SOILS MANAGEMENT PLAN APPROVED BY THE REGIONAL WATER QUALITY CONTROL BOARD.
- ABANDONED PIPES SHALL BE FILLED WITH CONCRETE-SLURRY OTHERWISE REMOVED AND SUBJECT FOR INSPECTION BY THE CITY OF LONG BEACH ENGINEER.
- NO CONNECTION OF A NEW WATER LINE TO THE EXISTING WATER LINE IN THE CITY PROPERTY IS ALLOWED UNLESS THE NEW LINE HAS BEEN TESTED AND APPROVED FOR CONNECTION BY THE CITY ENGINEER.
- DEVELOPER OR CONTRACTOR IS REQUIRED TO OBTAIN A FIRE HYDRANT CONSTRUCTION METER FOR CONSTRUCTION USE OF WATER.
- THE CITY OF LONG BEACH WATER CREW IS RESPONSIBLE FOR WATER SHUTDOWN. REQUEST SHALL BE MADE 72 HOURS BEFORE ANY SHUTDOWN. CONTRACTOR IS RESPONSIBLE FOR ALL IMPACTED PROPERTIES INCLUDING TEMPORARY SUPPLY OF WATER IF NEEDED.
- ALL CITY OWNED SALVAGED MATERIALS REQUESTED BY THE CITY TO BE SALVAGED SHALL BE DELIVERED TO THE CITY YARD.
- CONTRACTOR IS RESPONSIBLE FOR RECONSTRUCTING OR REINSTALLING ANY PAVEMENT, TREES, SURVEY MONUMENTS, TRAFFIC STRIPING, UNDERGROUND UTILITIES AND ALL OTHER ABOVEGROUND AND UNDERGROUND STRUCTURES DAMAGED BY THEIR OPERATION DURING THE PROJECT WORK.
- CONTRACTOR SHALL NOTIFY THE CITY PUBLIC WORKS DEPARTMENT 72 HOURS PRIOR TO ANY GRADING, BRUSHING OR CLEARING AND EACH PHASE OF CONSTRUCTION AT (310) 412-5553 AND 72 HOURS PRIOR TO REQUIRING INSPECTIONS.
- NO EQUIPMENT OR MATERIALS SHALL BE PARKED OR STORED IN ANY PLACE WITHIN THE CITY OF LONG BEACH RIGHT OF WAY WITHOUT AUTHORITY FROM THE CITY.
- "NO PARKING" SIGNS CAN ONLY BE POSTED IN ACCORDANCE WITH THE CITY OF LONG BEACH PROCEDURES AND APPROVAL.
- DEVELOPER OR CONTRACTOR SHALL ENSURE THAT ALL TRASH WILL BE PICKED UP DURING THE PICK UP TIME. ALL WASTE TRANSACTION SHALL BE COORDINATED WITH CITY WASTE MANAGEMENT CONTRACTOR.
- IF THE CONTRACTOR OPTS TO USE A TRAFFIC CONTROL PLAN, THE PLAN SHALL BE PREPARED BY A LICENSED TRAFFIC CONTROL ENGINEER WITH THE STATE OF CALIFORNIA AND SHALL BE APPROVED BY THE CITY OF LONG BEACH.
- THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL, REPLACEMENT OR RELOCATION OF ALL REGULATORY, WARNING AND GUIDE SIGNS.
- CONTRACTOR IS RESPONSIBLE FOR THE SAFETY OF ITS WORKERS AND THE PUBLIC. PROPER TRAFFIC SIGNS, WARNING SIGNS, PROPER USE OF EQUIPMENT, PUBLIC WALKWAYS, SHORING EQUIPMENT AND ALL SAFETY DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE SAFETY STANDARDS. THE CONTRACTOR SHALL NOT DISTURB EXISTING SURVEY MONUMENTS OR BENCH MARKS NOTED ON THE PLANS, OR FOUND DURING CONSTRUCTION. REMOVAL AND REPLACEMENT SHALL BE DONE BY A REGISTERED CIVIL ENGINEER WITH AN R.C.E. NUMBER BELOW 33,966, OR A LICENSED LAND SURVEYOR, ONLY.
- ALL TRAVELED WAYS MUST BE CLEANED DAILY OF ALL DIRT, MUD AND DEBRIS DEPOSITED ON THEM AS A RESULT OF THE CONSTRUCTION OPERATION. CLEANING IS TO BE DONE TO THE SATISFACTION OF THE CITY ENGINEER/INSPECTOR.
- ALL CONSTRUCTION AREAS SHALL BE PROPERLY POSTED AND LIGHTED IN CONFORMANCE WITH THE STATE MANUAL OF WARNING SIGNS, LIGHTS AND DEVICES FOR USE IN THE PERFORMANCE OF WORK UPON HIGHWAYS, IN ORDER TO ELIMINATE ANY HAZARDS. 29. CONSTRUCTION PROJECTS REQUIRING HAVING A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT ARE REQUIRED TO FILE A NOTICE OF INTENT (NOI) WITH THE WATER RESOURCES CONTROL BOARD (SWRCB). PREPARE A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AND MONITORING PLAN FOR THE SITE. THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM IS A NATIONAL PROGRAM TO CONTROL NON-POINT SOURCE POLLUTANTS CARRIED BY STORM WATER. THE PROGRAM IS IMPLEMENTED AND ENFORCED BY THE STATE WATER RESOURCES CONTROL BOARD.
- IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE, VERIFY DEPTH AND PROTECT ALL STRUCTURES, INCLUDING STRUCTURES, SHOWN ON THE PLAN. THE CONTRACTOR SHALL BEAR THE ENTIRE COST OF REPAIRING OR REPLACING ANY OF SAID STRUCTURES DAMAGED BY HIM DURING PROSECUTION OF THE WORK. ALL REPAIRS AND REPLACEMENTS SHALL BE DONE IN THE PRESENCE OF THE INSPECTOR. ALL LOCATIONS SHOWN ON THE PLAN FOR UTILITY LINES HAVE BEEN TAKEN FROM AVAILABLE RECORDS AND THEIR COMPLETENESS AND CORRECTNESS ARE IN NO WAY GUARANTEED.

STORM DRAINAGE GENERAL NOTES (CONT.)

- THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT (USA) AT 1-800 227-2600 AND ALL PUBLIC UTILITIES COMPANIES AND OWNERS OF PRIVATE FACILITIES WITHIN THE AREA OF CONSTRUCTION AT LEAST 2 WORKING DAYS IN ADVANCE OF PERFORMING WORK WITHIN SAID AREA.
- CAUTION: REVIEW APPROVED CONSTRUCTION PLAN. IF CONSTRUCTION REQUIRES WORKERS AND/OR EQUIPMENT TO BE WITHIN 6 FEET OF CRANES OR HOISTING DEVICES TO BE WITHIN 10 FEET OF OVERHEAD ELECTRIC LINES, CALL SOUTHERN CALIFORNIA EDISON CO. AT (310) 783-9339 FOR PROJECTS IN RESIDENTIAL AREAS OR (310) 783-9331 FOR PROJECTS IN COMMERCIAL AREAS.
- PRIOR TO COMMENCEMENT OF WORK, ALL SURVEY MONUMENTS IN THE PROJECT AREA SHALL BE LOCATED AND TIED OUT.
- GRADE SHEETS PREPARED AND STAMPED BY A LICENSED ENGINEER OR SURVEYOR SHALL BE DELIVERED TO THE INSPECTOR PRIOR TO COMMENCEMENT OF WORK.
- UNLESS OTHERWISE SHOWN, ALL EXISTING TRAFFIC SIGNS SHALL BE RELOCATED OR REMOVED BY THE CITY. THE CONTRACTOR SHALL NOTIFY THE STREET DEPARTMENT AT (310) 412-5333 AT LEAST 2 WORKING DAYS IN ADVANCE TO ARRANGE THE WORK. THE CONTRACTOR SHALL PROVIDE A 24-HOUR TELEPHONE NUMBER FOR EMERGENCY REPAIRS TO TRAFFIC CONTROL AND PAVEMENT MARKINGS.
- THE CONTRACTOR SHALL NOTIFY THE CITY STREET DEPARTMENT AT (310) 412-5333 PRIOR TO TRIMMING, REMOVING OR RELOCATING ANY EXISTING TREES IN CITY R/W.
- PLANTED AND IRRIGATED PARKWAY(S) (IF REQUIRED) SHALL HAVE MATERIALS AND PLANTS APPROVED BY THE PLANNING DEPARTMENT PRIOR TO INSTALLATION.
- DURING NON-CONSTRUCTION HOURS, ALL EXCAVATIONS MUST BE PLATED OR BACKFILLED EXCEPT BORE PITS WHICH SHALL BE SECURED WITH K-RAIL AND 6' HIGH CHAIN LINK FENCE PANELS SECURED IN PLACE TO THE SATISFACTION OF THE ENGINEERING DIRECTOR. PLATES SHALL BE NON-SKID TYPE, TACK WELDED, PINNED AND/OR SECURED IN PLACE BY ANOTHER METHOD APPROVED BY THE INSPECTOR.
- THE CONTRACTOR SHALL MAKE AVAILABLE FOR THE INSPECTOR'S REVIEW, ON A DAILY BASIS, AS-BUILT DRAWINGS FOR WORK PERFORMED UP TO, AND INCLUDING, THE PREVIOUS DAY'S ACTIVITIES. WORK SHALL NOT BE CONSIDERED AS COMPLETE UNTIL AS-BUILT DRAWINGS ARE SUBMITTED TO, AND ACCEPTED, BY THE ENGINEERING DIRECTOR.

BEST MANAGEMENT PRACTICES

- RUNOFF, SEDIMENT, AND CONSTRUCTION WASTE FROM CONSTRUCTION SITES AND PARKING AREAS MUST NOT LEAVE THE SITE.
- ANY SEDIMENTS OR OTHER MATERIALS WHICH ARE TRACKED OFF THE SITE MUST BE CLEANED AND REMOVED THE SAME DAY. WHERE DETERMINED BY THE ENGINEERING DIRECTOR, A TEMPORARY SEDIMENT BARRIER MUST BE INSTALLED.
- FOR EMERGENCIES ONLY, A PLASTIC COVERING MAY BE USED TO PREVENT EROSION OF AN UNPROTECTED AREA, ALONG WITH DEVICES DESIGNED TO INTERCEPT AND SAFELY DIVERT RUNOFF.
- EXCAVATED SOIL MUST BE LOCATED ON-SITE IN A WAY THAT INSURES THAT THE SOIL WILL NOT BE WASHED ONTO THE STREET OR ADJOINING PROPERTIES. SOIL PILES MUST BE COVERED UNTIL THE SOIL IS EITHER USED OR REMOVED.
- WASHING OF CONSTRUCTION OR OTHER INDUSTRIAL VEHICLES WILL NOT BE ALLOWED ADJACENT TO THE CONSTRUCTION SITE. RUNOFF FROM THE WASHING OF VEHICLES ON A CONSTRUCTION SITE IS NOT ALLOWED TO LEAVE THE SITE OR ENTER THE STORM DRAIN.
- DRAINAGE CONTROLS MUST BE USED AS NEEDED, DEPENDING ON THE EXTENT OF PROPOSED GRADING AND TOPOGRAPHY OF THE SITE.

ENGINEER'S NOTICE TO CONTRACTOR

THE EXISTENCE AND LOCATION OF ANY AND ALL CONDUITS, UTILITY PIPES, AND STRUCTURES SHOWN ON THIS SET OF PLANS ARE OBTAINED BY A SEARCH OF THE AVAILABLE RECORDS AT THE TIME OF DESIGN. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO EXISTING UTILITIES WITHIN THE CONSTRUCTION LIMITS OF THIS PROJECT AT THE TIME OF DESIGN EXCEPT AS SHOWN ON THIS SET OF PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT ANY AND ALL UTILITY LINES SHOWN ON THIS SET OF PLANS. THE CONTRACTOR FURTHER ASSUMES ANY AND ALL LIABILITY AND RESPONSIBILITY FOR THE CONDUITS, UTILITY PIPES, AND STRUCTURES SHOWN ON THIS SET OF DRAWINGS. THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT. THIS STIPULATION INCLUDES THE SAFETY OF ANY AND ALL PERSONS AND PROPERTY. THE CONTRACTOR SHALL FURTHER DEFEND, INDEMNIFY, AND HOLD THE OWNER AND ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, WITH THE EXCEPTION OF LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ENGINEER.

STORM DRAIN IMPROVEMENT CONSTRUCTION NOTES

NO	DESCRIPTION	UNIT	QUANTITY
1	INSTALL N-12 WT HDPE STORM DRAIN PIPE PER ADS PRODUCT STANDARD AND SPECIFICATION. PIPE DIAMETER PER PLAN.	LF	8,390
2	INSTALL 30" NYLOPLAST RISER/RAIN BASIN WITH WATERTIGHT JOINTS, SOLID H2O COVER, AND INSERT A TEE MANIFOLD ADAPTER.	EA	41
3	INSTALL 24"x24" JENSEN PRECAST CONCRETE BOX WITH TRAFFIC RATED GRATE AND GRATE MASTER FILTER GUARD OR APPROVED EQUAL.	EA	70
4	INSTALL 12" C900, CLASS 165 PRESSURE PIPE. USE NBR RUBBER GASKET MATERIALS IN ALL PIPE GASKETS FROM ROMAC INDUSTRIES.	FT	670
5	CONSTRUCT PRECAST MANHOLE FOR HOMA PUMP STATION PER SHEET 6.	EA	4
6	CONSTRUCT MANHOLE PER SSPW STD. NO 320-2.	EA	2
7	CONSTRUCT 48" RCP, D-LOAD=2000.	LF	124
8	CONSTRUCT CONC. BULKHEAD (T=12") TO SEAL PIPE OPENING.	EA	2
9	CONSTRUCT PIPE CULVERT HEADWALLS PER CALTRANS STD. DB68.	EA	1
10	CONSTRUCT ROCK RIP RAP CHANNEL LINING, DEPTH IS 2.5' MIN.	CF	3,576
11	ABANDON EXISTING STORM DRAIN WITH 1-SACK SAND AND CEMENT SLURRY.	LF	90

QUANTITIES ARE APPROXIMATE ONLY. CONTRACTOR SHALL DETERMINE HIS OWN QUANTITIES AND FURNISH INCREASES OR REDUCTION IN QUANTITIES FOR HIS BIDDING PURPOSES.

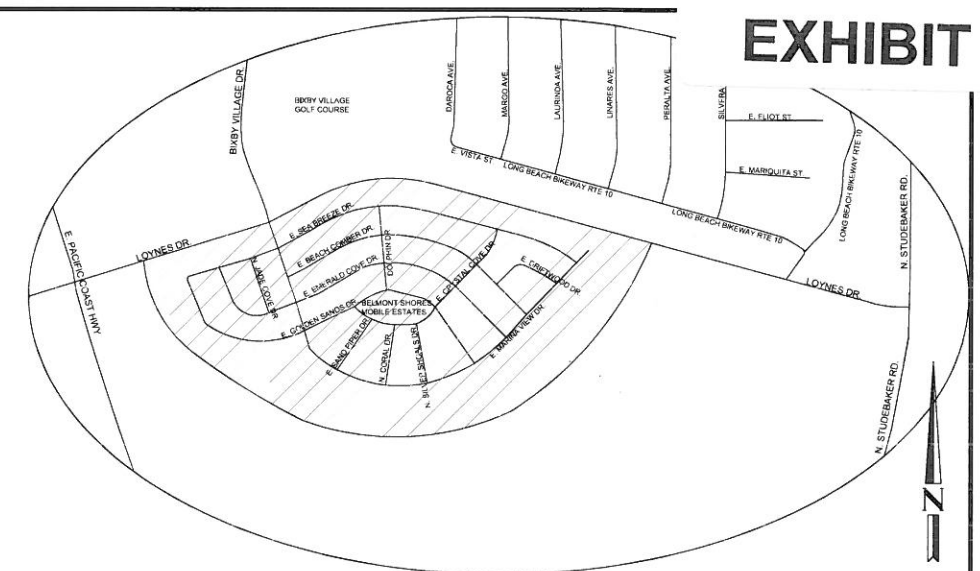
FOR EXISTING STORM DRAIN LINE REMOVAL QUANTITY, ASSUME SAME "LF" AS PROPOSED STORM DRAIN LINE QUANTITY SINCE EXISTING UTILITY RECORD IS UNAVAILABLE.

ABBREVIATIONS

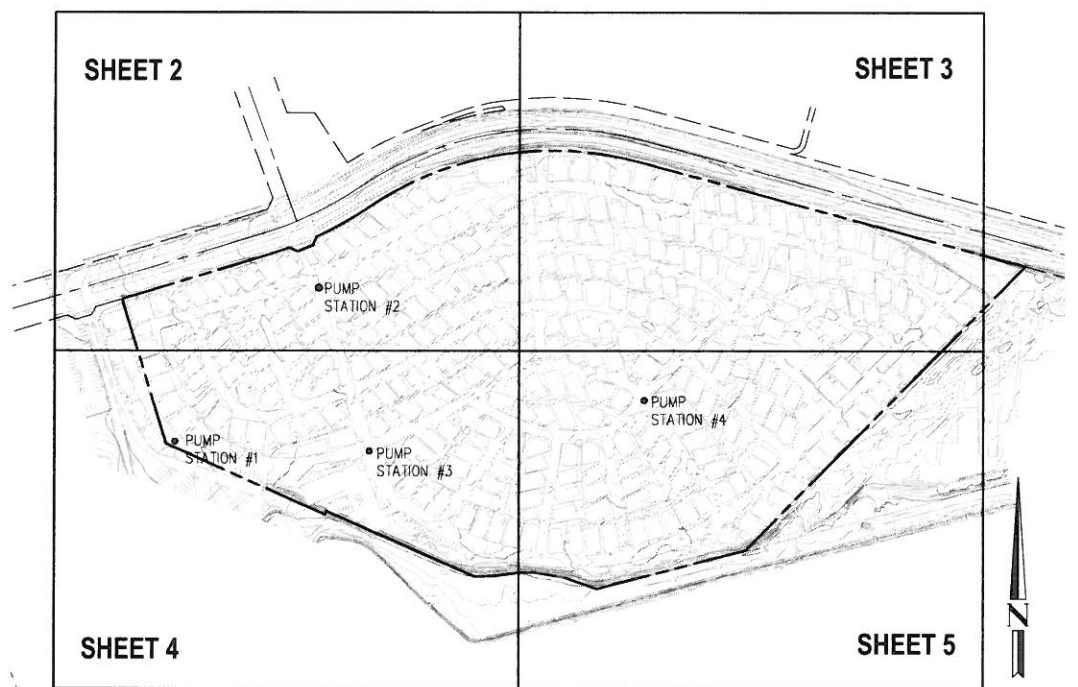
- SSMH SANITARY SEWER MANHOLE
- LF LINEAR FEET
- SDR STANDARD DIMENSION RATIO
- IE INVERT ELEVATION
- STD STANDARD
- SSPWC STANDARD SPECIFICATION FOR PUBLIC WORKS CONSTRUCTION
- PVC POLYVINYL CHLORIDE
- CL CENTER LINE
- STM STORM DRAIN
- W WATER LINE
- R/W RIGHT-OF-WAY
- SDMH STORM DRAIN MANHOLE

LEGEND

- STORM DRAIN DROP INLET
- STORM DRAIN MANHOLE
- STORM DRAIN PIPE
- WATER PIPE
- ⊗ WATER VALVE
- ⊗ WATER THRUST BLOCK
- SANITARY SEWER MANHOLE
- SANITARY SEWER CLEANOUT
- SANITARY SEWER PIPE
- ELECTRICAL CONDUIT
- EXISTING GAS LINE



VICINITY MAP NTS



SHEET INDEX MAP 1" = 200'

INDEX OF DRAWINGS:

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	NORTHWEST QUADRANT
3	NORTHEAST QUADRANT
4	SOUTHWEST QUADRANT
5	SOUTHEAST QUADRANT
6	DETAIL SHEET



LOCATION MAP NTS

WDD NO: _____



CALL 811
AT LEAST TWO DAYS BEFORE YOU DIG

BENCH MARK

LA COUNTY BENCHMARK # 1409; L&T IN CATCH BASIN LOCATED AT SW CORNER OF PACIFIC COAST HIGHWAY & LOYNES DRIVE INTERSECTION, 45' S/CURB. ELEV=7.178 FT, NGVD 1929, 1985 ADJUSTMENT.

BASIS OF BEARING

THE BEARING OF N16°54'30"W ALONG THE CENTERLINE OF PACIFIC COAST HIGHWAY, AS SHOWN ON MAP FILED IN BOOK 54, PAGES 24 - 26 OF RECORDS OF SURVEY, RECORDS OF LOS ANGELES COUNTY, CALIFORNIA, WAS TAKEN AS THE BASIS OF BEARINGS.

NO.	DESCRIPTION	DATE	BY
2	PC #2 FINAL PLAN	4/9/15	
1	PC #1	2/7/15	
REVISIONS			



Hall & Foreman
A Division of David Evans and Associates, Inc.
25152 SPRINGFIELD CT., STE. 350 - SANTA CLARITA, CA 91355 - 661-284-7400
PREPARED UNDER THE SUPERVISION OF:
MICHAEL DE LEON, 70298 DATE _____

CIRUS DEVELOPMENT
BELMONT SHORES ESTATES, LONG BEACH, CA

DRAWN BY:	PER PLAN
DESIGNED BY:	DATE: 03-30-16
CHECKED BY:	SHT NO: 1 OF 6
APPROVED BY:	DATE
CITY ENGINEER	

UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

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 1:15013 Long Beach 8031 E. 8031 North Plots 55 form: E:\proj\01_160117-0008.dwg
 1:15013 Long Beach 8031 E. 8031 North Plots 55 form: E:\proj\01_160117-0008.dwg

STORM DRAIN IMPROVEMENT CONSTRUCTION NOTES

1. INSTALL N-12 WT HDPE STORM DRAIN PIPE PER ADS PRODUCT STANDARD AND SPECIFICATION. PIPE DIAMETER PER PLAN.
2. INSTALL 30" NYLOPLAST RISER/DRAIN BASIN WITH WATERTIGHT JOINTS, SOLID H2O COVER, AND INSERT A TEE MANIFOLD ADAPTER.
3. INSTALL 24"x24" JENSEN PRECAST CONCRETE BOX WITH TRAFFIC RATED GRATE AND GRATE MASTER FILTER GUARD OR APPROVED EQUAL.
4. INSTALL 12" C900, CLASS 165 PRESSURE PIPE. USE NBR RUBBER GASKET MATERIALS IN ALL PIPE GASKETS FROM ROMAC INDUSTRIES.
5. CONSTRUCT PRECAST MANHOLE FOR HOMA PUMP STATION PER SHEET 6.
6. CONSTRUCT MANHOLE PER SSPW STD. NO 320-2.
7. CONSTRUCT 48" RCP, D-LOAD=2000.
8. CONSTRUCT CONC. BULKHEAD (T=12") TO SEAL PIPE OPENING.
9. CONSTRUCT PIPE CULVERT HEADWALLS PER CALTRANS STD. D866 AS SHOWN ON DETAIL "A" ON SHEET 5.
10. CONSTRUCT ROCK RIP RAP CHANNEL LINING, DEPTH IS 2.5' MIN. INSTALL GEOTEXTILE FILTER BLANKET AT THE BOTTOM OF THE RIP RAP. PROVIDE CLASS IV ROCKS WITH THE FOLLOWING GRADATION CLASSIFICATIONS:

W ₁₅ = 62 - 180 LBS.	D ₁₅ = 9.2 - 13.0 in.
W ₃₀ = 240 - 420 LBS.	D ₃₀ = 14.5 - 17.5 in.
W ₆₀ = 600 - 1000 LBS.	D ₆₀ = 19.5 - 23.0 in.
W ₁₀₀ = 1000 - 2200 LBS.	D ₁₀₀ = 23.0 - 30.0 in.
11. ABANDON EXISTING STORM DRAIN WITH 1-SACK SAND CEMENT SLURRY.

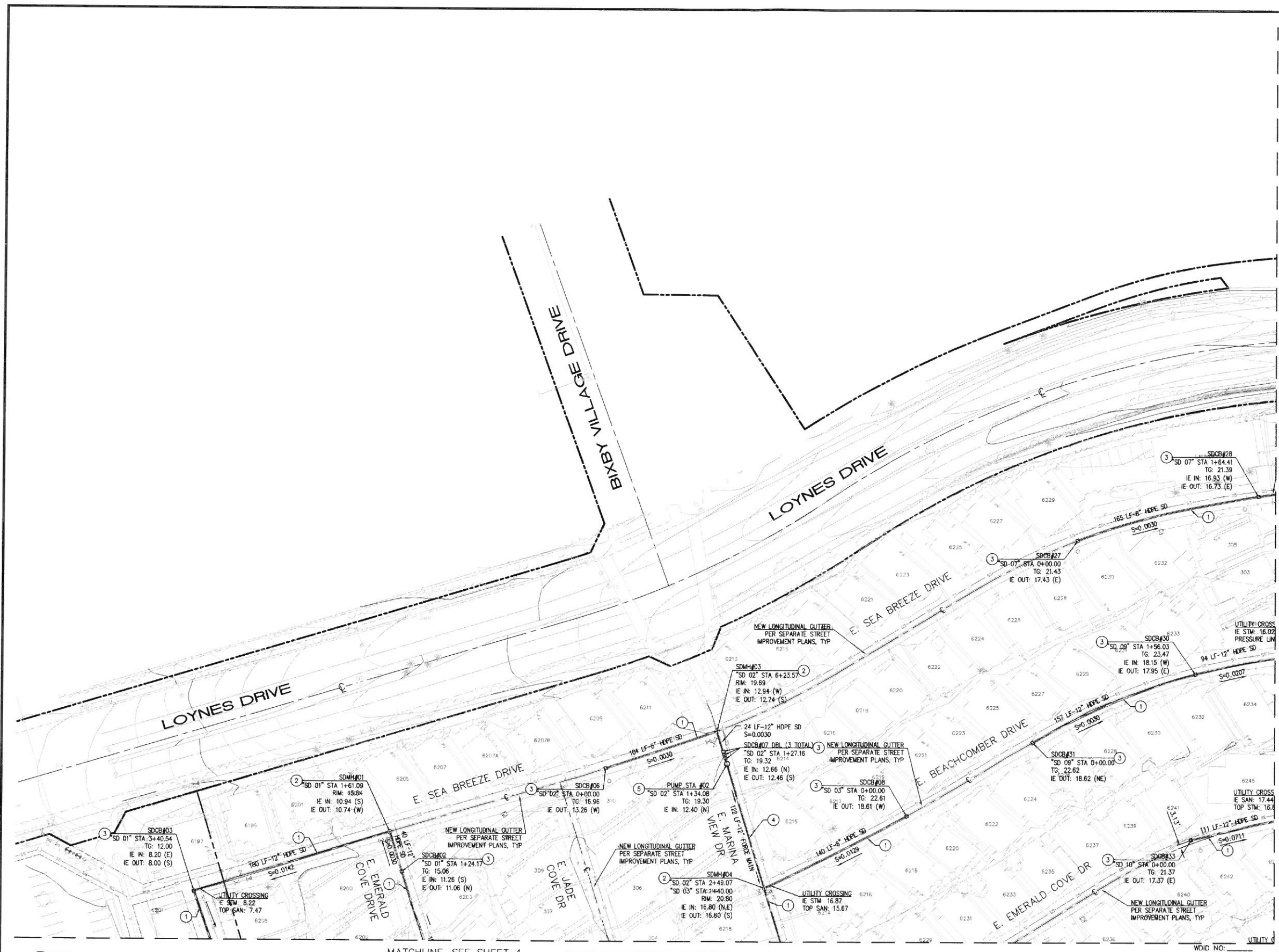
DEMOLITION NOTES

10. REMOVE EXISTING CMP PIPE. SEE NOTE #4.

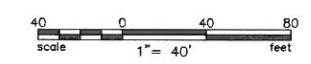
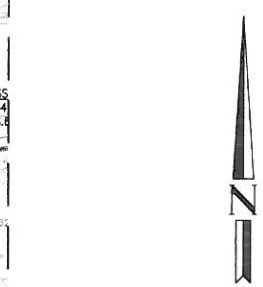
GENERAL NOTES

1. ALL BURIED CONCRETE MATERIAL SHALL BE COATED WITH EPOXY SEALANT OR APPROVED EQUAL.
2. PIPE TRENCHING PER DETAIL ON SHEET 6.
3. EXISTING STORM DRAIN WITHIN STREETS TO BE REMOVED PER SEPARATE STREET IMPROVEMENT PLANS.
4. CONTRACTOR TO LOCATE AND REMOVE A PORTION OF EXISTING 48" CMP AND ITS STRUCTURE AS SHOWN ON SHEET 5.

NOTICE TO CONTRACTOR:
 THERE ARE LIVE ELECTRICAL LINES THAT ARE NOT SHOWN ON PLAN, PLEASE TAKE EXTREME CAUTION DURING CONSTRUCTION.



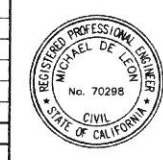
MATCHLINE - SEE SHEET 3



811
 Know what's below. Call before you dig.
 CALL 811 AT LEAST TWO DAYS BEFORE YOU DIG.
 UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

MATCHLINE-SEE SHEET 4

NO.	DESCRIPTION	DATE	BY
2	PC #2 FINAL PLAN	4/9/15	
1	PC #1	2/17/15	
REVISIONS			



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 PREPARED UNDER THE SUPERVISION OF:
 MICHAEL DE LEON, 70298 DATE

CIRUS DEVELOPMENT
 BELMONT SHORES ESTATES, LONG BEACH, CA

DRAWN BY:	SCALE: PER PLAN
DESIGNED BY:	DATE: 03-30-16
CHECKED BY:	SHT NO.: 2 of 6
APPROVED BY:	CITY ENGINEER DATE

Drawing Name: L:\6017X\Eng\6017-000\Final Plans\Storm Drain\02_140117-000d01.dwg
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STORM DRAIN IMPROVEMENT CONSTRUCTION NOTES

- 1) INSTALL N-12 WT HDPE STORM DRAIN PIPE PER ADS PRODUCT STANDARD AND SPECIFICATION. PIPE DIAMETER PER PLAN.
- 2) INSTALL 30" NYLOPLAST RISER/DRAIN BASIN WITH WATERTIGHT JOINTS, SOLID H2O COVER, AND INSERT A TEE MANIFOLD ADAPTER.
- 3) INSTALL 24"x24" JENSEN PRECAST CONCRETE BOX WITH TRAFFIC RATED GRATE AND GRATE MASTER FILTER GUARD OR APPROVED EQUAL.
- 4) INSTALL 12" C900, CLASS 165 PRESSURE PIPE. USE NBR RUBBER GASKET MATERIALS IN ALL PIPE GASKETS FROM ROMAC INDUSTRIES.
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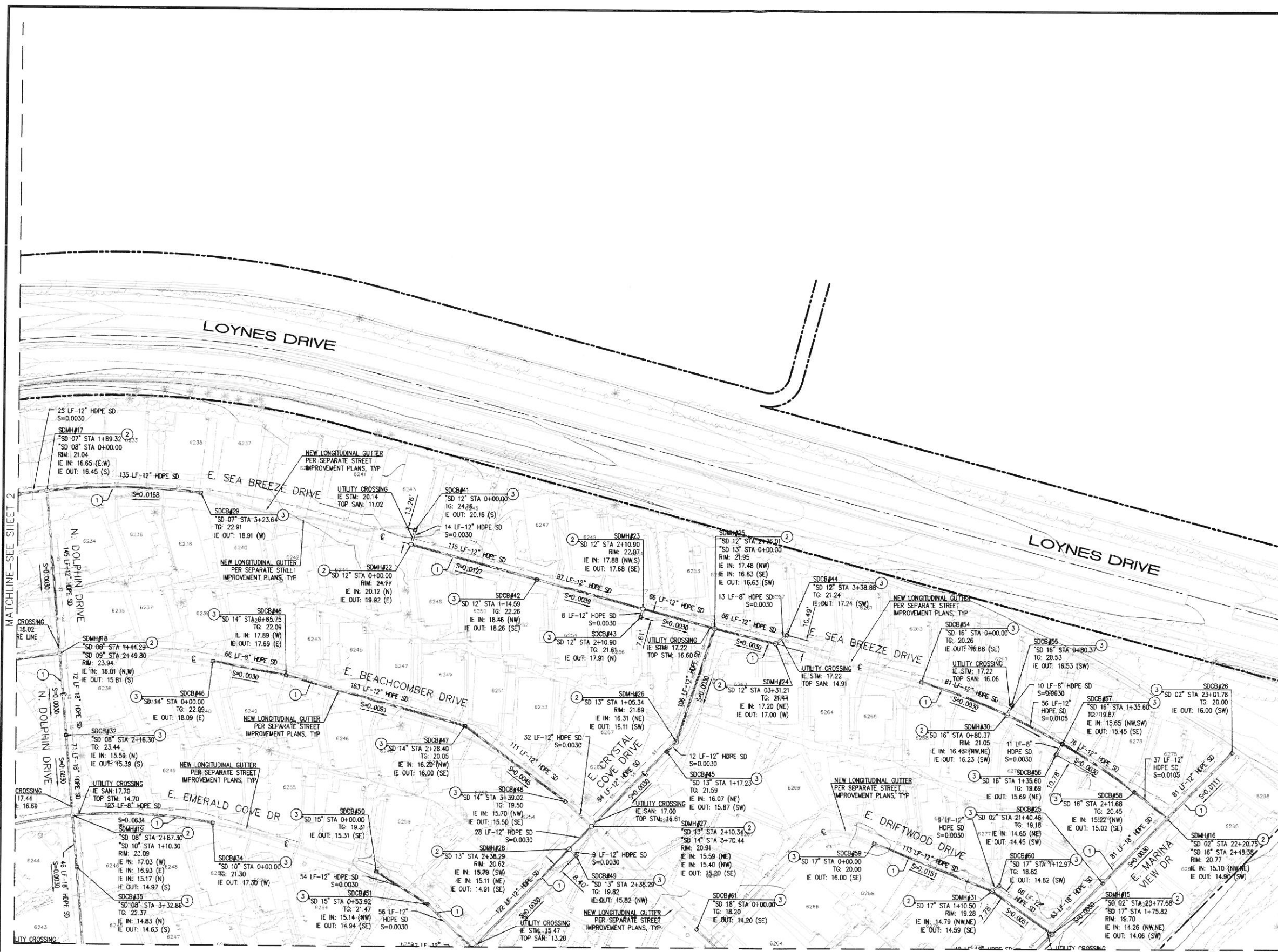
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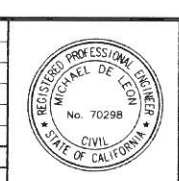
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 MICHAEL DE LEON, 70298

CIRUS DEVELOPMENT
 BELMONT SHORES ESTATES, LONG BEACH, CA

STORM DRAIN IMPROVEMENT PLANS
 NORTHEAST QUADRANT

DRAWN BY:	SCALE: PER PLAN
DESIGNED BY:	DATE: 03-30-16
CHECKED BY:	SHT NO: 3 of 6
APPROVED BY:	DATE:
CITY ENGINEER:	DATE:

Planning Name: U:\Projects\150117-0001\Final Plans\Storm Drain\03-140117-0001.dwg
 Date: 03/30/16 10:49:22 AM
 User: mdeleon

MATCHLINE-SEE SHEET 2



STORM DRAIN IMPROVEMENT CONSTRUCTION NOTES

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7. CONSTRUCT 48" RCP, D-LOAD=2000.
8. CONSTRUCT CONC. BULKHEAD (T=12") TO SEAL PIPE OPENING.
9. CONSTRUCT PIPE CULVERT HEADWALLS PER CALTRANS STD. D86B AS SHOWN ON DETAIL "A" ON SHEET 5.
10. CONSTRUCT ROCK RIP RAP CHANNEL LINING, DEPTH IS 2.5' MIN. INSTALL GEOTEXTILE FILTER BLANKET AT THE BOTTOM OF THE RIP RAP. PROVIDE CLASS IV ROCKS WITH THE FOLLOWING GRADATION CLASSIFICATIONS:

W ₆₀ = 62 - 180 LBS.	D ₁₀ = 9.2 - 13.0 in.
W ₄₀ = 240 - 420 LBS.	D ₃₀ = 14.5 - 17.5 in.
W ₂₀ = 600 - 1000 LBS.	D ₁₅ = 19.5 - 23.0 in.
W ₁₀ = 1000 - 2200 LBS.	D ₁₀ = 23.0 - 30.0 in.
11. ABANDON EXISTING STORM DRAIN WITH 1-SACK SAND CEMENT SLURRY.

DEMOLITION NOTES

10. REMOVE EXISTING CMP PIPE. SEE NOTE #4.

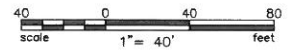
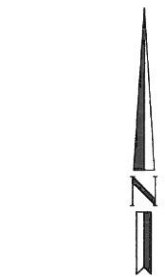
GENERAL NOTES

1. ALL BURIED CONCRETE MATERIAL SHALL BE COATED WITH EPOXY SEALANT OR APPROVED EQUAL.
2. PIPE TRENCHING PER DETAIL ON SHEET 6.
3. EXISTING STORM DRAIN WITHIN STREETS TO BE REMOVED PER SEPARATE STREET IMPROVEMENT PLANS.
4. CONTRACTOR TO LOCATE AND REMOVE A PORTION OF EXISTING 48" CMP AND ITS STRUCTURE AS SHOWN ON SHEET 5.

NOTICE TO CONTRACTOR:
THERE ARE LIVE ELECTRICAL LINES THAT ARE NOT SHOWN ON PLAN, PLEASE TAKE EXTREME CAUTION DURING CONSTRUCTION.

MATCHLINE-SEE SHEET 5

Checked by: [Signature]
 Prepared by: [Signature]
 Date: 4/9/15
 Scale: 1" = 40'



WDID NO: _____

811
 Know what's below.
 Call before you dig.
 CALL 811
 AT LEAST TWO DAYS
 BEFORE YOU DIG
 UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA

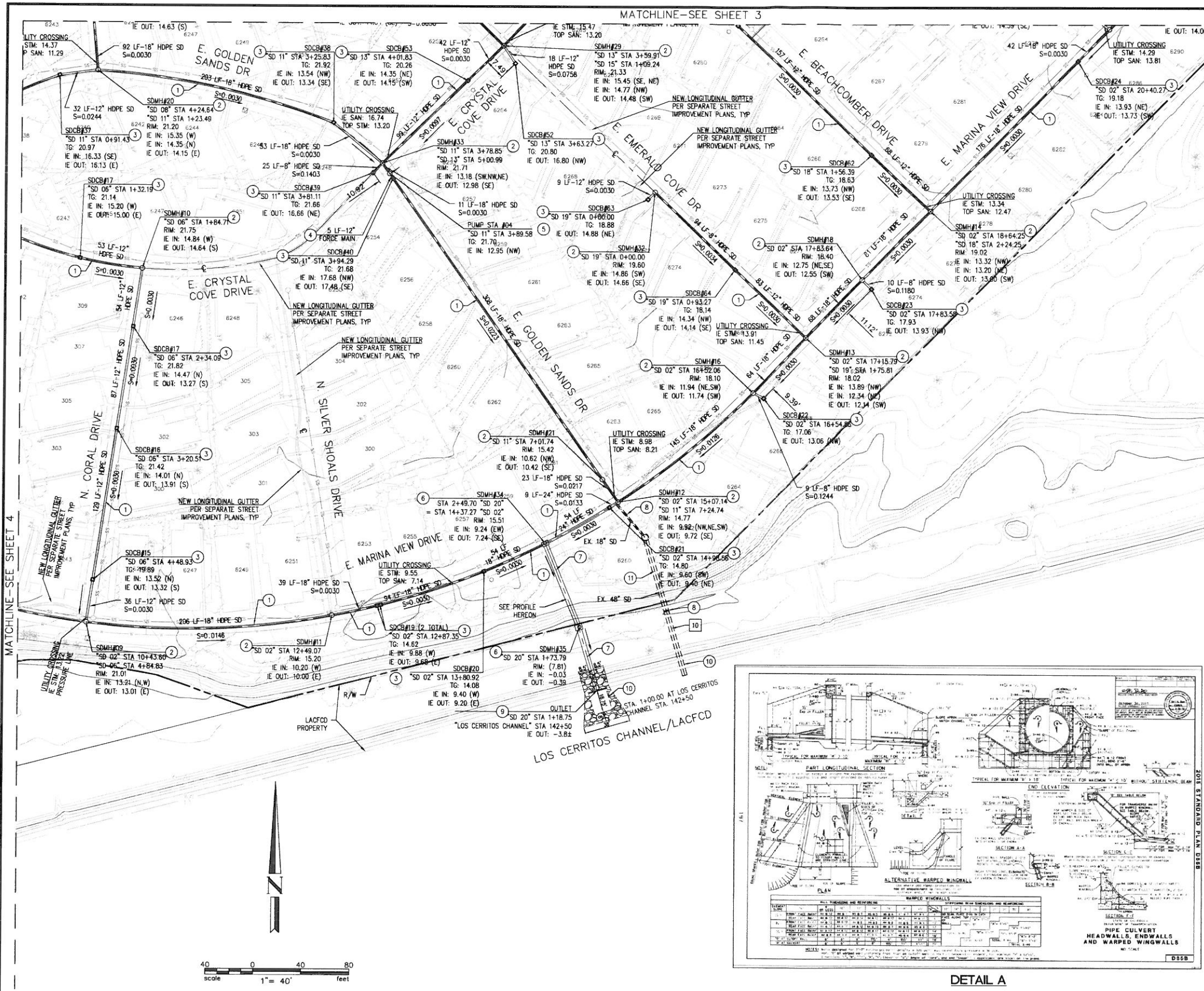
NO.	DESCRIPTION	DATE	BY
2	PC #2 FINAL PLAN	4/9/15	
1	PC #1	2/17/15	
REVISIONS			



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 PREPARED UNDER THE SUPERVISION OF:
 MICHAEL DE LEON, 70298 DATE _____

CIRUS DEVELOPMENT BELMONT SHORES ESTATES, LONG BEACH, CA	
DRAWN BY:	SCALE: PER PLAN
DESIGNED BY:	DATE: 03-30-16
CHECKED BY:	SHT NO.: 4 of 6
APPROVED BY:	DATE: _____
CITY ENGINEER	

Drawing Name: Cirus Development - Storm Drain SW - 140117-0001.dwg
 Date: 03/30/16
 User: mdeleon



STORM DRAIN IMPROVEMENT CONSTRUCTION NOTES

- INSTALL N-12 WT HDPE STORM DRAIN PIPE PER ADS PRODUCT STANDARD AND SPECIFICATION. PIPE DIAMETER PER PLAN.
- INSTALL 30" NYLOPLAST RISER/RAIN BASIN WITH WATERTIGHT JOINTS, SOLID H2O COVER, AND INSERT A TEE MANIFOLD ADAPTER.
- INSTALL 24"x24" JENSEN PRECAST CONCRETE BOX WITH TRAFFIC RATED GRATE AND GRATE MASTER FILTER GUARD OR APPROVED EQUAL.
- INSTALL 12" C900, CLASS 165 PRESSURE PIPE. USE NBR RUBBER GASKET MATERIALS IN ALL PIPE GASKETS FROM ROMAC INDUSTRIES.
- CONSTRUCT PRECAST MANHOLE FOR HOMA PUMP STATION PER SHEET 6.
- CONSTRUCT MANHOLE PER SSPW STD. NO 320-2.
- CONSTRUCT 48" RCP, D-LOAD=2000.
- CONSTRUCT CONC. BULKHEAD (T=12") TO SEAL PIPE OPENING.
- CONSTRUCT PIPE CULVERT HEADWALLS PER CALTRANS STD. DB66 AS SHOWN ON DETAIL "A" HEREON.
- CONSTRUCT ROCK RIP RAP CHANNEL LINING. DEPTH IS 2.5' MIN. INSTALL GEOTEXTILE FILTER BLANKET AT THE BOTTOM OF THE RIP RAP. PROVIDE CLASS IV ROCKS WITH THE FOLLOWING GRADATION CLASSIFICATIONS:

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- ABANDON EXISTING STORM DRAIN WITH 1-SACK SAND CEMENT SLURRY.

DEMOLITION NOTES

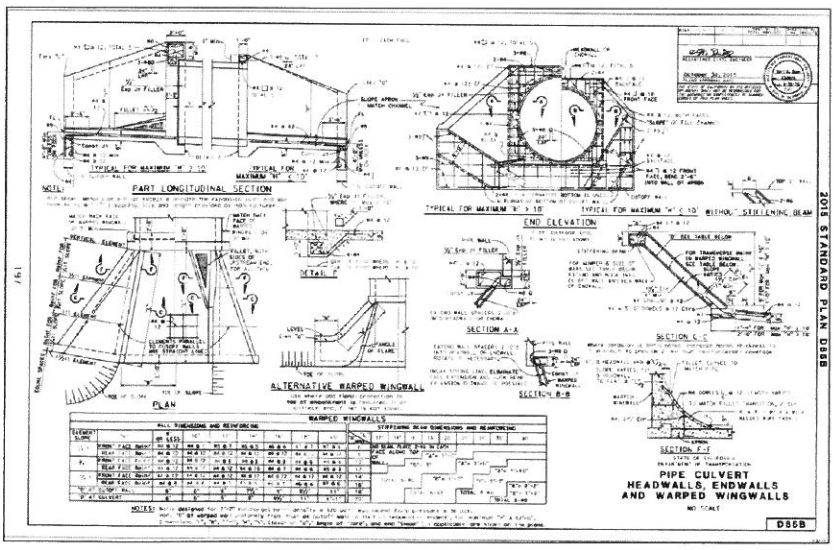
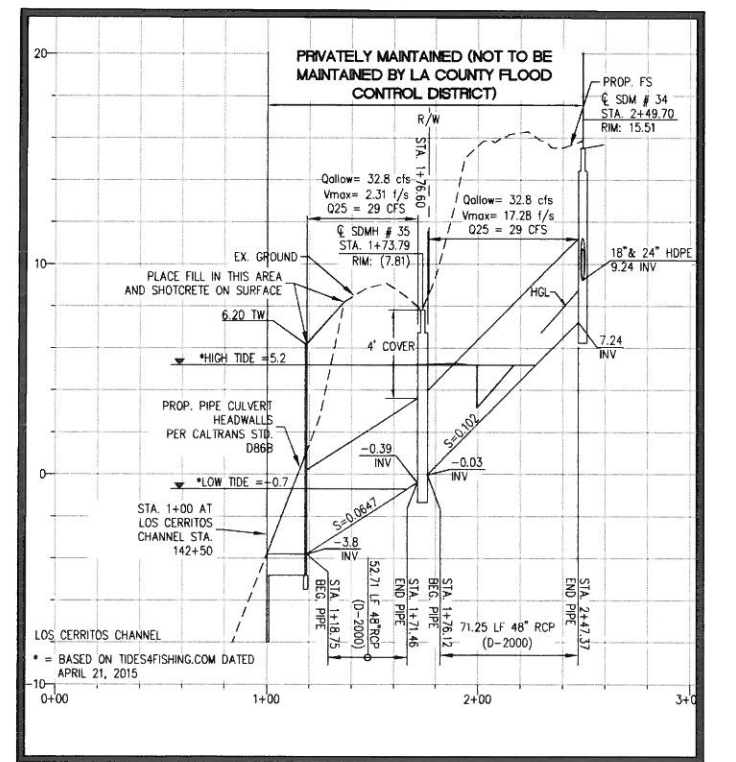
- REMOVE EXISTING CMP PIPE. SEE NOTE #4.

GENERAL NOTES

- ALL BURIED CONCRETE MATERIAL SHALL BE COATED WITH EPOXY SEALANT OR APPROVED EQUAL.
- PIPE TRENCHING PER DETAIL ON SHEET 6.
- EXISTING STORM DRAIN WITHIN STREETS TO BE REMOVED PER SEPARATE STREET IMPROVEMENT PLANS.
- CONTRACTOR TO LOCATE AND REMOVE A PORTION OF EXISTING 48" CMP AND ITS STRUCTURE AS SHOWN HEREON.

LOS CERRITOS CHANNEL STORM DRAIN CONNECTION

H: 1"=40'
V: 1"=4'



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NO.	DESCRIPTION	DATE	BY
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1	PC #1	2/17/15	

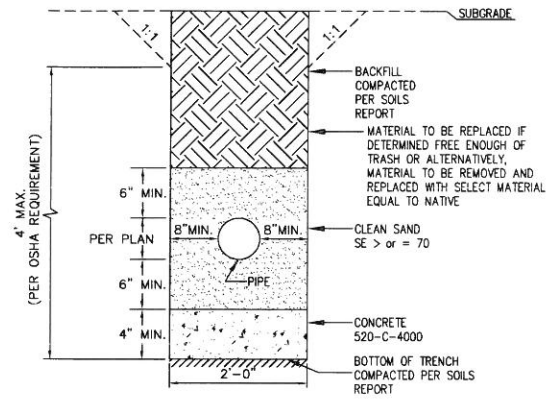
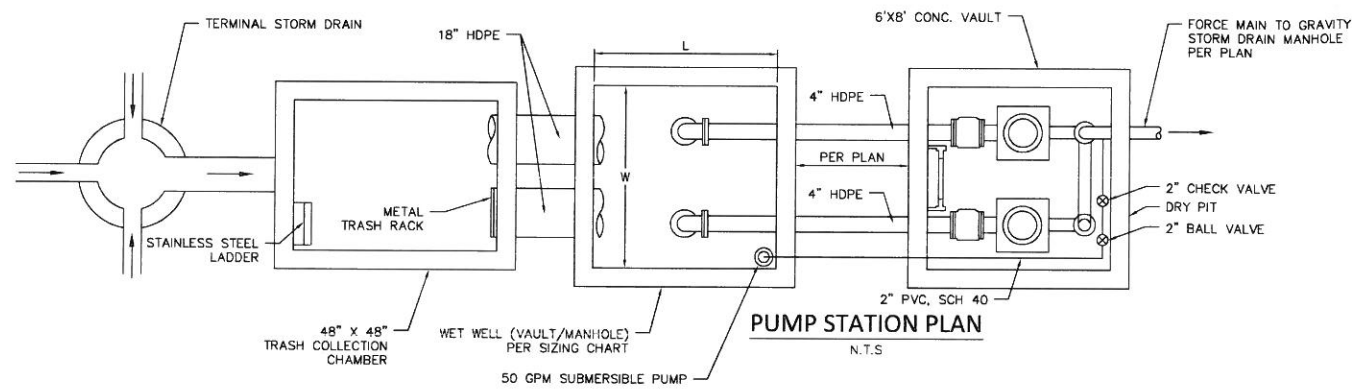


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MICHAEL DE LEON, 70298

CIRUS DEVELOPMENT
BELMONT SHORES ESTATES, LONG BEACH, CA

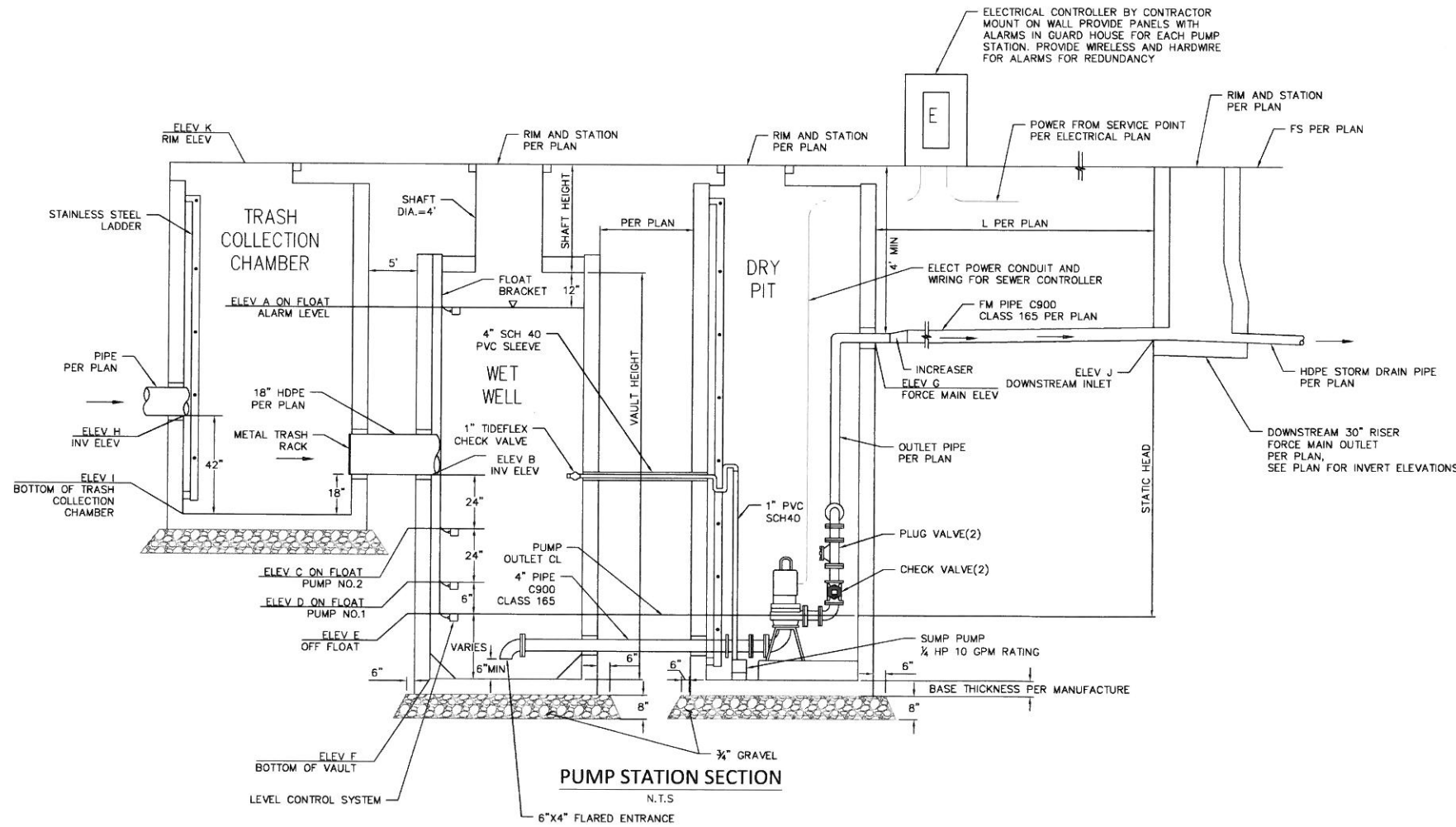
STORM DRAIN IMPROVEMENT PLANS
SOUTHEAST QUADRANT

SCALE: PER PLAN
DATE: 03-30-16
SHT NO: 5 OF 6



STORM DRAIN PUMP STATION SIZING CHART

PUMP STATION #	1	2	3	4
SUMP PUMP (GPM) =	50	50	50	50
PUMP FLOW RATE (GPM) =	300	300	300	1250
PEAK FLOW Q10 (CFS) =	1.2	0.7	0.6	2.7
MAXIMUM STORAGE HEIGHT (FT) =	9.9	6.5	5.5	9.3
WET VAULT LENGTH, L (FT) =	10	7	7	14
WET VAULT WIDTH, W (FT) =	10	7	7	10
WET VAULT HEIGHT, H (FT) =	10	7	7	10
SHAFT HIGHT (FT) =	5.1	8.4	9.3	7.3
TOTAL HEIGHT FROM BOTTOM OF WET WELL VAULT TO FG (FT) =	15.1	15.4	16.3	17.3
ELEVATION A (ALARM LEVEL) =	7.4	9.9	10.2	13.5
ELEVATION B (INVERT ELEVATION) =	4.9	10.4	10.7	11.0
ELEVATION C (ON FLOAT PUMP NO. 2) =	2.9	8.4	8.7	9.0
ELEVATION D (ON FLOAT PUMP NO. 1) =	0.9	6.4	6.7	7.0
ELEVATION E (OFF FLOAT) =	0.4	5.9	6.2	6.5
ELEVATION F (BOTTOM OF VAULT) =	-1.6	3.9	4.2	4.5
ELEVATION G (FORCE MAIN ELEVATION) =	8.9	14.8	16.0	16.7
ELEVATION H (TRASH COLLECTION CHAMBER INVERT ELEVATION) =	6.9	12.4	12.7	13.0
ELEVATION I (BOTTOM OF TRASH COLLECTION CHAMBER) =	3.4	8.9	9.2	9.5
ELEVATION J (DOWNSTREAM MANHOLE INLET ELEVATION) =	16.9	16.9	16.9	17.7
ELEVATION K (FG/RIM ELEVATION) =	13.4	19.3	20.5	21.7
STATIC HEAD (FT) =	16.5	11.0	10.7	11.2
OUTLET PIPE (FORCE MAIN) DIAMETER (INCH) =	6	6	6	12
FORCE MAIN LENGTH (FT) =	553	504	90	5
VELOCITY (FT/S) =	3.4	3.4	3.4	3.6
TOTAL MINOR LOSSES (FT) =	3.0	3.0	3.0	3.0
HAZEN-WILLIAMS COEFFICIENT FOR PLASTIC PIPE =	130	130	130	130
PIPE HEAD LOSS = $H_f = 0.002083L(100/C)^{1.85} (GPM^{1.85}/D^{4.87})$ =	5.50	5.01	0.90	0.02
TOTAL DYNAMIC HEAD (FT) =	25	19	15	14



PUMPS MODEL NUMBER AND VOLTAGE

PUMP STATION #	PUMP MODEL #	VOLTAGE
1	AVX446-230/6.2TU	460 V 3 PH
2	AVX446-230/6.2TU	460 V 3 PH
3	AVX446-230/6.2TU	460 V 3 PH
4	AMX646-340/15.3	460 V 3 PH

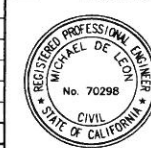
GENERAL NOTES:

- WELL DESIGN BASED ON JENSEN PRECAST # JES-DPA.
- JENSEN PRECAST DISTRIBUTOR CONTACT INFORMATION:
825 STENERI WAY, SPARKS, NV 89431
(855) 468-5600
- PUMP MANUFACTURE: HOMA OR APPROVED EQUIVALENT.
- PUMP DISTRIBUTOR CONTACT INFORMATION:
WILLIAM WANG, MULTI W SYSTEM INC.
2615 STROTZER AV, EL MONTE, CA 91733
(626)401-2527
- EXTERIOR VAULT (MANHOLE) SURFACE SHALL BE WATERPROOFED WITH ASPHALT MASTIC COATING.
- ALL VAULT JOINTS SHALL BE GASKETED AND WATERPROOFED.
- VAULTS AND COVERS SHALL BE RATED FOR HIGHWAY TRAFFIC LOADING (H20).
- VAULTS OPENING FOR PIPING SHALL BE SEALED WITH LINK SEALS.
- CONTRACTOR SHALL DEWATER TRENCHES IN HIGH GW AREAS.
- METAL TRASH RACK TYPE 18-9 GRADE WITH BOLTED CONNECTION PER CALTRANS STD. PLAN 077A.



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WOID NO: _____

CIRUS DEVELOPMENT
BELMONT SHORES ESTATES, LONG BEACH, CA

DESIGNED BY: _____
CHECKED BY: _____
APPROVED BY: _____
CITY ENGINEER

SCALE: PER PLAN
DATE: 03-30-16
SHT NO.: 6 OF 6

Drawing Name: I:\Users\jyang\14017-0000\proj\Plans\Storm_Drn\NBR_14017-0000.dwg
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