

Permit Plans for

ROSE MARINA

SECTIONS 5 & 8, TOWNSHIP 52 SOUTH, RANGE 26 EAST COLLIER COUNTY, FLORIDA

Owner

ROSE MARINA
951 BLAD EAGLE DRIVE
NAPLES, FL 34145

Collier County Folio Nos.

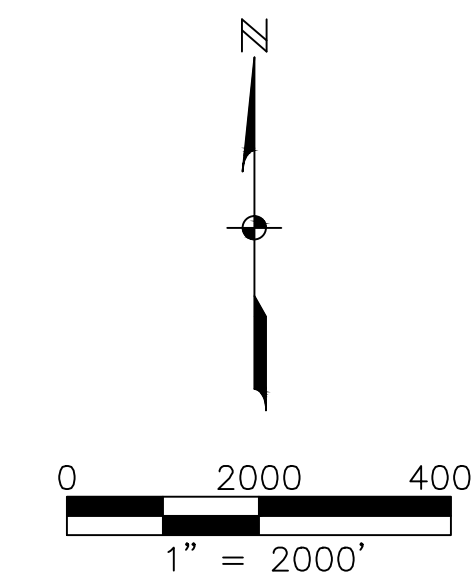
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Size of Parcel

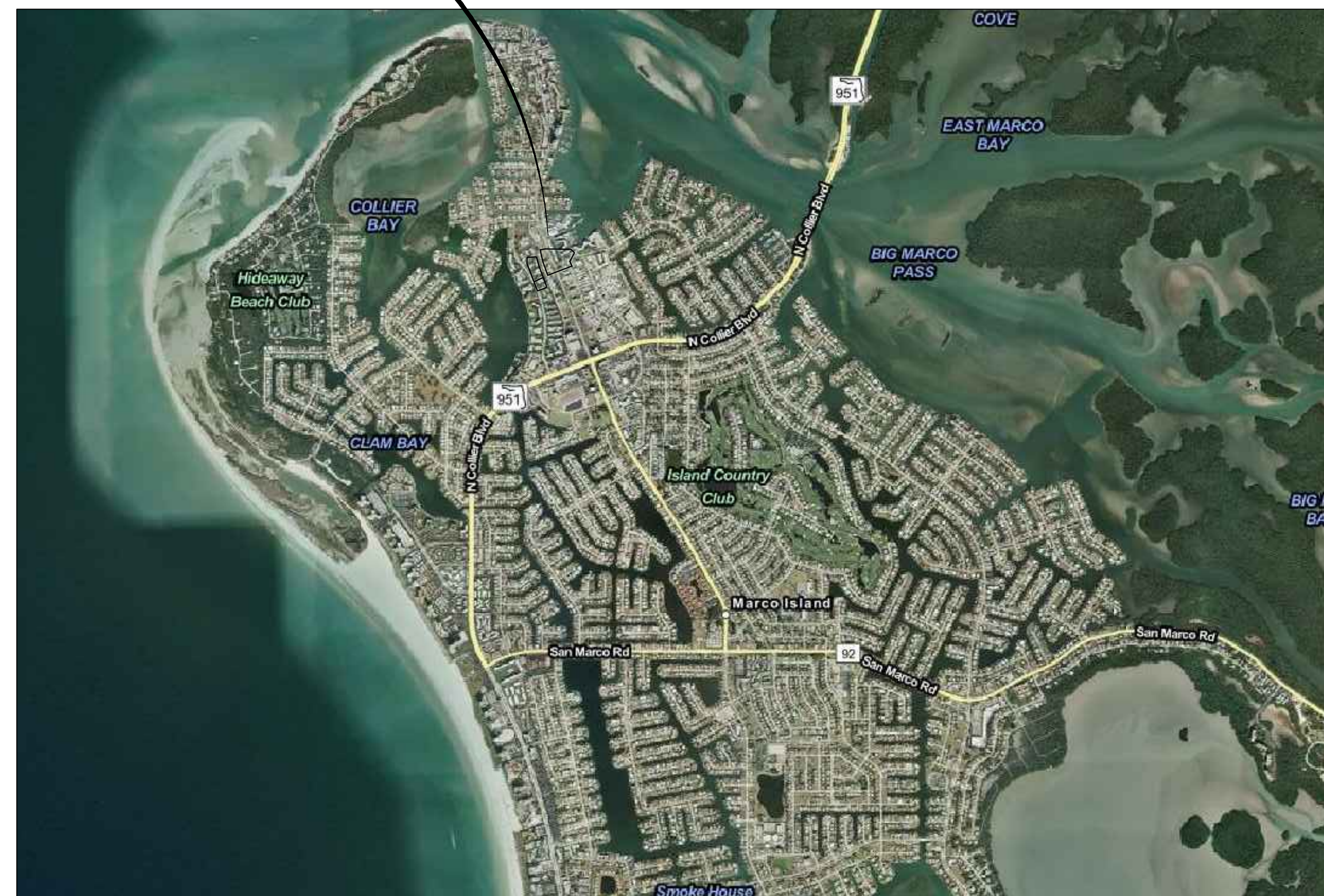
8.78 ACRES

City Council Members

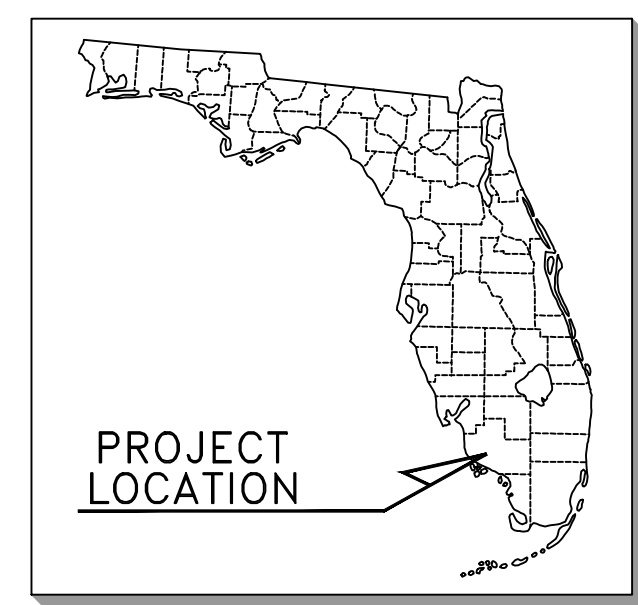
- Councilor Joe Batte
- Councilor Bob Brown
- Chairman Kenneth E. Honecker
- Councilor Larry Honig
- Councilor Chuck Kiester
- Councilor Amadeo R. Petricca
- Vice Chairman Larry Sacher



Project Location



LOCATION MAP



HAGAN
ENGINEERING

1250 TAMiami TRAIL N., STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

2015 SDP

NOVEMBER 2014

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:

SHEET
C-1

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U-04	UTILITY DETAILS

Attachments

SHEET NO.	DESCRIPTION
R-01 TO R-02	FDOT DETAILS
U-01 TO U-03	CITY OF MARCO ISLAND UTILITY DETAILS
	LANDSCAPE PLANS
	LIGHTING PLANS
	LEGAL DESCRIPTION

LOTS 11, 12, 13, AND 14, BLOCK "133", MARCO BEACH UNIT 4, AS RECORDED IN PLAT BOOK 6, PAGES 32-37, PUBLIC RECORDS OF COLLIER COUNTY, FLORIDA.
CONTAINING 1.05 ACRES OF LAND MORE OR LESS.

AND
PART OF TRACT "A", MARCO BEACH UNIT 4, (PLAT BOOK 6, PAGES 32-37), AS DESCRIBED IN OR. 232, PAGE 24, PUBLIC RECORDS OF COLLIER COUNTY, FLORIDA.
CONTAINING 3.49 ACRES OF LAND MORE OR LESS.

AND
PART OF TRACT "A", MARCO BEACH UNIT 4, (PLAT BOOK 6, PAGES 32-37), AS DESCRIBED IN OR. 252, PG. 876, PUBLIC RECORDS OF COLLIER COUNTY, FLORIDA.
CONTAINING 2.23 ACRES OF LAND MORE OR LESS.

AND
TRACT "B", MARCO BEACH UNIT 11, AS RECORDED IN PLAT BOOK 6, PAGES 80-86, PUBLIC RECORDS OF COLLIER COUNTY, FLORIDA.
CONTAINING 2.18 ACRES OF LAND MORE OR LESS.

AND
LOT 1, BLOCK 783, MARCO BEACH UNIT 11, AS RECORDED IN PLAT BOOK 12, PAGES 24-26, PUBLIC RECORDS OF COLLIER COUNTY, FLORIDA.
CONTAINING 0.93 ACRES OF LAND MORE OR LESS.
(ALL) SUBJECT TO EASEMENTS AND RESTRICTIONS OF RECORD.

Utility Services

WATER & SEWER SERVICE: MARCO ISLAND UTILITIES 50 Bald Eagle Drive Marco Island, FL 34145 PHONE (239) 394-3880	CABLE TELEVISION: COMCAST 301 TOWER ROAD NAPLES, FLORIDA 34113 PHONE (239) 793-3577
ELECTRIC SERVICE: LEE COUNTY ELECTRIC COOPERATIVE 4880 BAYLINE DR, FORT MYERS, FL 33917 PHONE (800) 599-2356	WASTE DISPOSAL: WASTE MANAGEMENT OF COLLIER COUNTY 4500 EXCHANGE AVENUE NAPLES, FL 34104, 34112 PHONE (239) 249-2212
PHONE SERVICE: CENTURY LINK 6438 NAPLES BLVD #100 NAPLES, FLORIDA 34109 PHONE (239) 596-6220	FIRE CONTROL DISTRICT: MARCO ISLAND FIRE DISTRICT 1280 SAN MARCO ROAD MARCO ISLAND, FLORIDA 34145 PHONE (239) 389-5040

REVISION	DESCRIPTION	DATE
1	REVISED PER CITY OF MARCO ISLAND COMMENTS	5-4-2015



DATA TAKEN FROM AUGUST 6, 2013 ABB SURVEY OVER 2012 COLLIER COUNTY AERIAL.

REVISIONS	

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

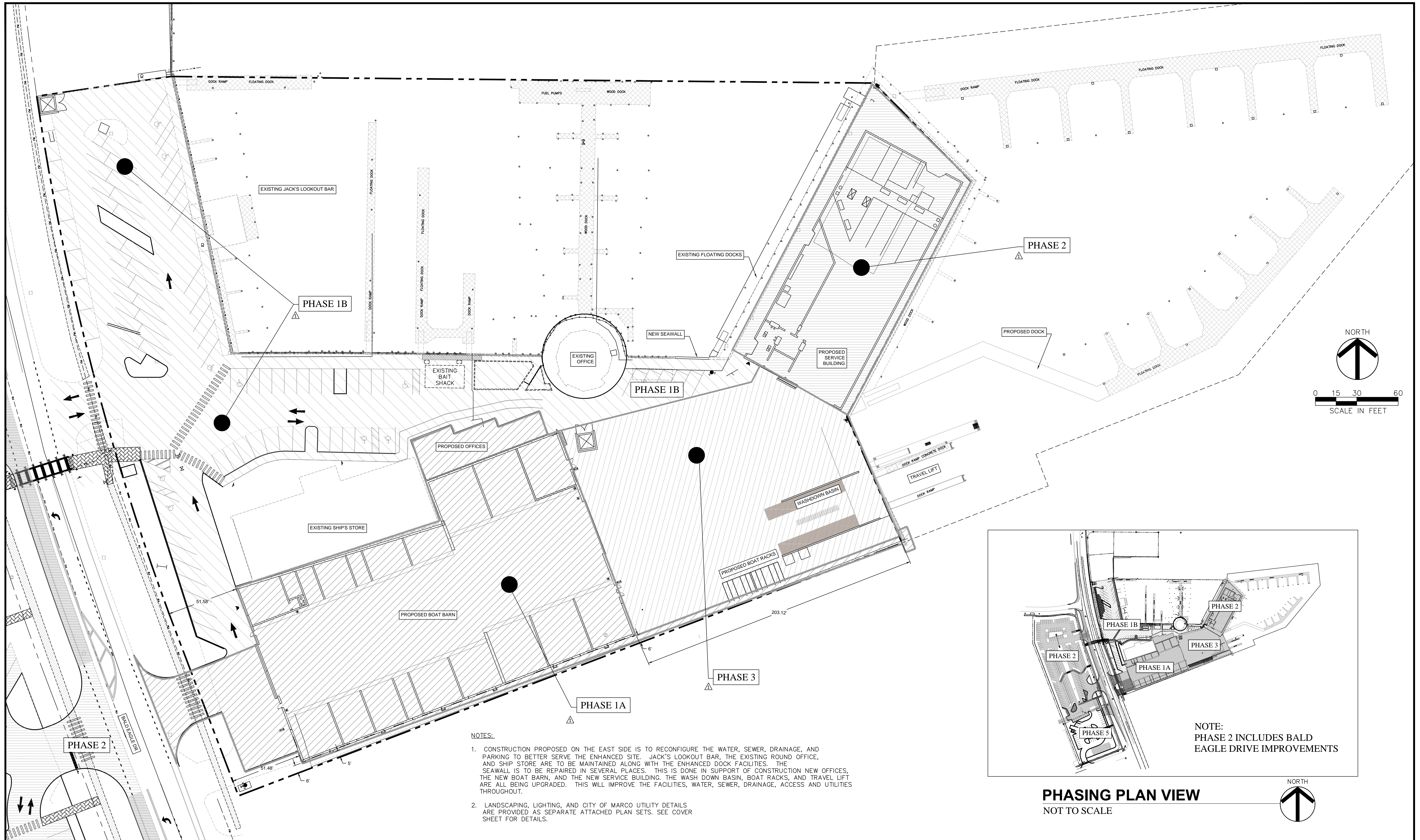
HAGAN
ENGINEERING

1250 TAMiami TRAIL N., STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

PERMIT PLANS

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:

EXISTING CONDITIONS - EAST			
DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	C-3



REVISIONS	

**ROSE MARINA
REDEVELOPMENT PLANS**

**CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA**

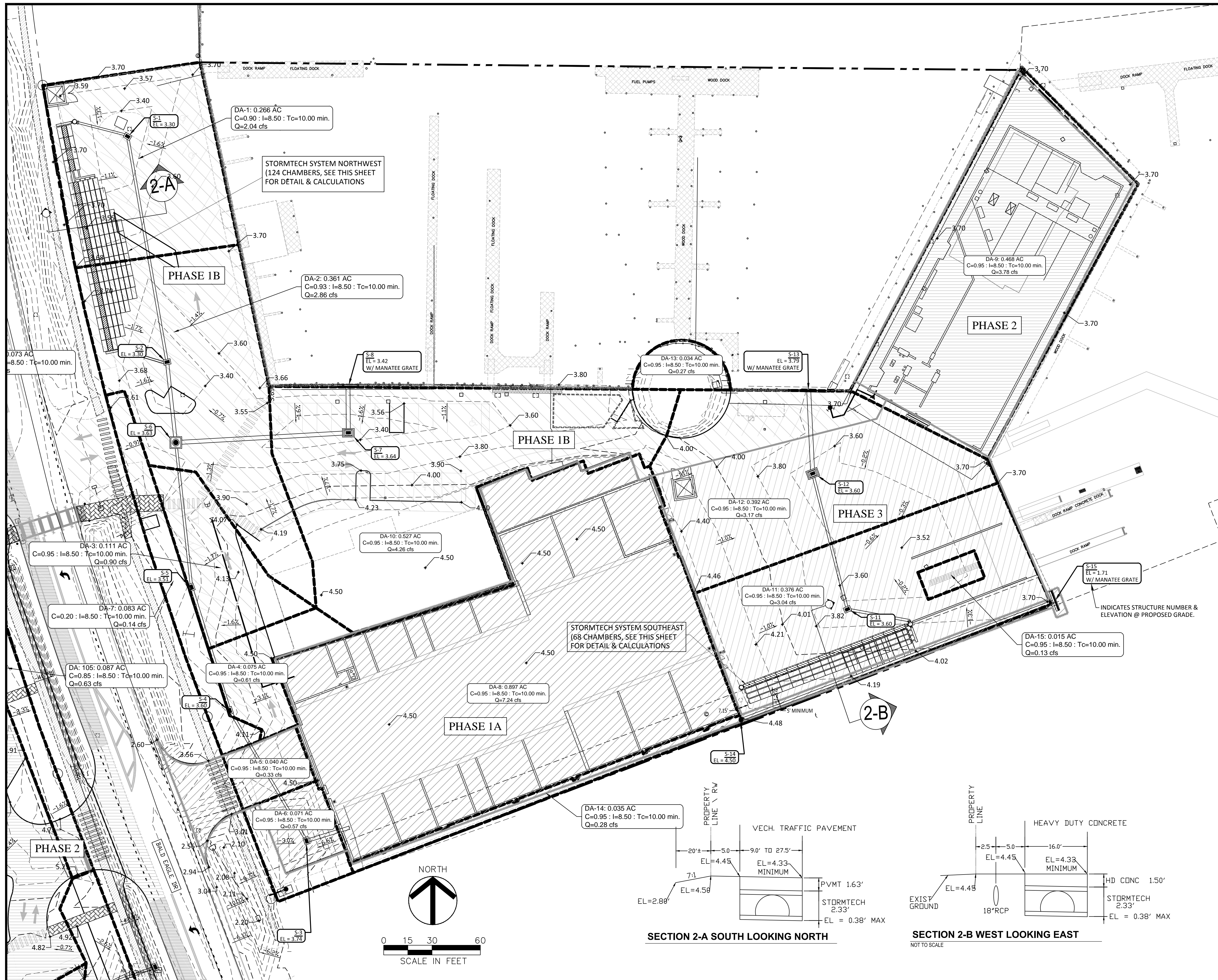
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PERMIT PLANS

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:

MASTER SITE PLAN - EAST			
DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	C-4



ality Treatment Calculations
is and flows

Area #	Acres	Description	Treatment for 0.75" Volume (cf)	25 Year design flows C	I (in/hr)	Q = CIA (cfs)	Discharge
1	0.266	Pavement	724.2	0.9	8.5	2.03	S-1
2	0.361	Pavement	982.8	0.9	8.5	2.76	S-2
3	0.111	Pavement and roof	302.2	0.9	8.5	0.85	S-5
4	0.075	Pavement and roof	204.2	0.9	8.5	0.57	S-4
5	0.04	Outside basin	0.0	N/A	0.9	0.31	Overland to Bald Eagle Drive
6	0.071	Pavement	193.3	0.9	8.5	0.54	S-3
7	0.083	Outside Basin	0.0	N/A	0.9	0.63	Overland to Bald Eagle Drive
8	0.897	Barn and office Roof	0.0	N/A	0.9	6.86	P-8 to Bay
9	0.468	Service Center Roof	0.0	N/A	0.9	3.58	Rain leaders to bay
10	0.527	Pavement	1434.8	0.9	8.5	4.03	S-7
11	0.376	Pavement	1023.7	0.9	8.5	2.88	S-11
12	0.392	Pavement and roof	1067.2	0.9	8.5	3.00	S-12
13	0.034	Outside basin	0.0	N/A	0.9	0.26	Rain leaders to bay
14	0.035	Outside basin	0.0	N/A	0.9	0.27	Overland off site
15	0.015	Outside basin	0.0	N/A	0.9	0.11	Washdowns excluded from drainage plan

Total In Basin: 5932.3 cf

StormTech System	Area #	Acres	Treat Vol	Total CF Req-d =
StormTech System Southeast	11	0.376	1023.7	3841.4
StormTech System Northeast	12	0.392	1067.2	

Total CF Req-d = 2090.9

Parameter	Value	Notes
Vertical Curve Length	21.00 in	
Vertical Curve Height	12.00 in	
Vertical Curve Slope	15.44 in Max	Use StormTech SC-130
Volume per Chamber	31	Chambers
Chambers needed	191	

StormTech
Subsistive Stormwater Management

Project: Rose Marina - Northeast, East Basin
By: Hagan Engineering
Point of Contact: Chris Hagan
Date: 3/5/2015

Units: Imperial

System Requirements

Required Storage Volume: 2,091 CF
Select StormTech Chamber System: SC-310
Stone Porosity (Industry Standard = 40%): 40%

Stone Foundation Depth: 18" (457 mm) MIN.
Storage Volume Per Chamber: 31.00 CF
Avg Cover over Chambers (18 in min. & 96 in max.): 18" (457 mm) MIN. / 96" (2438 mm) MAX.

Number of Chambers Required - 68

Approximate Bed Size Required: 1,810 SF
Tons of Stone Required: 167 Tons
Volume of Excavation: 220 CY
Area of Filter Fabric: 528 SY
of End Caps Required: 16 Each
Length of ISOLATOR ROW: 64.88 FT
ISOLATOR FABRIC: 28 SY

Is the limiting dimension for the bed the width or length?
Width: 24 FT (Controlled by Width)
Length: 96 FT (Controlled by Length)

of Chambers Long: 9 EA
of Rows: 8 EA
of Chambers long: 9 EA
of Rows: 8 EA
Actual Length: 67.66 FT
Actual Width: 28.14 FT

4 of the chambers rows will contain only 6 chambers

Material Estimate

To use this sheet, please enter data into the blue and green cells. If switching between Imperial and Metric units please check the correct units and data is input in the green cells.

Please call StormTech @ 888-892-2694 for conceptual cost estimates.

www.stormtech.com | 20 Beaver Road | Suite 104 | Weilerfield | Connecticut | 06109 | 888.892.2694 | fax 866.328.8401

StormTech
Subsistive Stormwater Management

Project: Rose Marina - East Basin
By: Hagan Engineering
Point of Contact: Chris Hagan
Date: 9/9/2014

Units: Imperial

System Requirements

Required Storage Volume: 3,841 CF
Select StormTech Chamber System: SC-310
Stone Porosity (Industry Standard = 40%): 40%

Stone Foundation Depth: 18" (457 mm) MIN.
Storage Volume Per Chamber: 31.00 CF
Avg Cover over Chambers (18 in min. & 96 in max.): 18" (457 mm) MIN. / 96" (2438 mm) MAX.

Number of Chambers Required - 124

Approximate Bed Size Required: 3,200 SF
Tons of Stone Required: 290 Tons
Volume of Excavation: 396 CY
Area of Filter Fabric: 895 SY
of End Caps Required: 24 Each
Length of ISOLATOR ROW: 85.44 FT
ISOLATOR FABRIC: 36 SY

Is the limiting dimension for the bed the width or length?
Width: 24 FT (Controlled by Width)
Length: 96 FT (Controlled by Length)

of Chambers Long: 12 EA
of Rows: 11 EA
of Chambers long: 12 EA
of Rows: 11 EA
Actual Length: 89.04 FT
Actual Width: 38.13 FT

8 of the chambers rows will contain only 11 chambers

Material Estimate

To use this sheet, please enter data into the blue and green cells. If switching between Imperial and Metric units please check the correct units and data is input in the green cells.

Please call StormTech @ 888-892-2694 for conceptual cost estimates.

www.stormtech.com | 20 Beaver Road | Suite 104 | Weilerfield | Connecticut | 06109 | 888.892.2694 | fax 866.328.8401

REVISIONS

NO.	DATE	DESCRIPTION
1	5-4-2015	REVISED PER CITY OF MARCO ISLAND COMMENTS

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

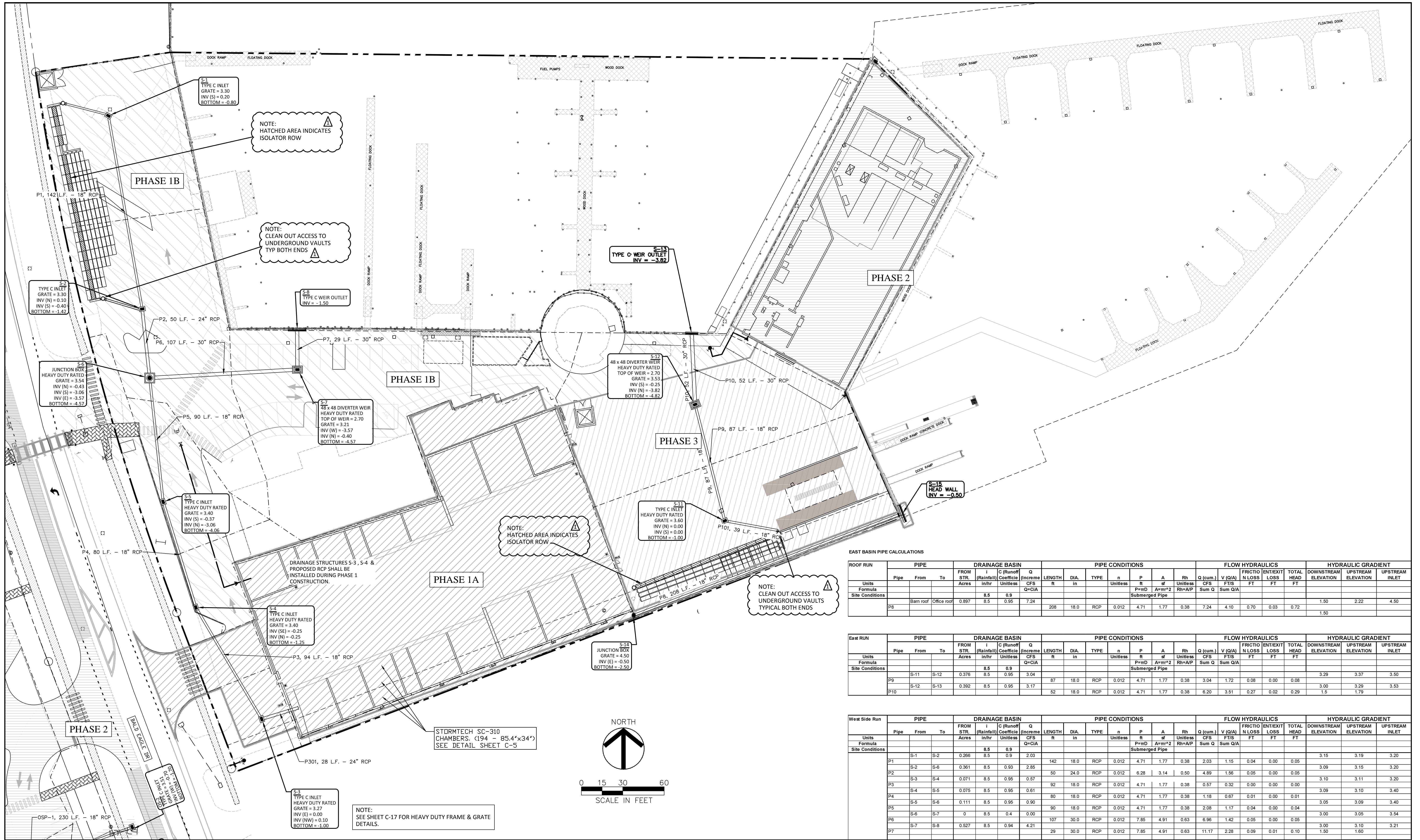


PERMIT PLANS

MASTER GRADING PLAN - EAST

DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	C-5

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474



EAST BASIN PIPE CALCULATIONS

ROOF RUN	PIPE		DRAINAGE BASIN				PIPE CONDITIONS					FLOW HYDRAULICS				HYDRAULIC GRADIENT					
	From	To	FROM STR. (Acres)	C (Rainfall) (in/hr)	C (Runoff) Coefficient (Unitless)	Q (Incrme) CFS	LENGTH (ft)	DIA. (in)	TYPE	n	P	A	Rh	Q (cum.) CFS	V (Q/A) FT/S	FRICTIO N LOSS FT	ENTREXIT LOSS FT	TOTAL HEAD FT	DOWNSREAM ELEVATION	UPSTREAM ELEVATION	UPSTREAM INLET
Units	Pipe																				
Formula						$Q=CIA$					$P=rD$	$A=rr^2$	$Rh=A/P$	Sum Q	Sum Q/A						
Site Conditions													Submerged Pipe								
	P8	S-11	0.897	8.5	0.95	7.24	208	18.0	RCP	0.012	4.71	1.77	0.38	7.24	4.10	0.70	0.03	0.72	1.50	2.22	4.50
																					1.50

East RUN	PIPE		DRAINAGE BASIN				PIPE CONDITIONS					FLOW HYDRAULICS				HYDRAULIC GRADIENT					
	From	To	FROM STR. (Acres)	C (Rainfall) (in/hr)	C (Runoff) Coefficient (Unitless)	Q (Incrme) CFS	LENGTH (ft)	DIA. (in)	TYPE	n	P	A	Rh	Q (cum.) CFS	V (Q/A) FT/S	FRICTIO N LOSS FT	ENTREXIT LOSS FT	TOTAL HEAD FT	DOWNSREAM ELEVATION	UPSTREAM ELEVATION	UPSTREAM INLET
Units	Pipe																				
Formula						$Q=CIA$						$P=rD$	$A=rr^2$	$Rh=A/P$	Sum Q	Sum Q/A					
Site Conditions														Submerged Pipe							
	P9	S-11	0.376	8.5	0.95	3.04	87	18.0	RCP	0.012	4.71	1.77	0.38	3.04	1.72	0.08	0.00	0.08	3.29	3.37	3.50
	P10	S-12	0.392	8.5	0.95	3.17	52	18.0	RCP	0.012	4.71	1.77	0.38	6.20	3.51	0.27	0.02	0.29	1.5	1.79	3.53

West Side Run	PIPE		DRAINAGE BASIN				PIPE CONDITIONS					FLOW HYDRAULICS				HYDRAULIC GRADIENT					
	From	To	FROM STR. (Acres)	C (Rainfall) (in/hr)	C (Runoff) Coefficient (Unitless)	Q (Incrme) CFS	LENGTH (ft)	DIA. (in)	TYPE	n	P	A	Rh	Q (cum.) CFS	V (Q/A) FT/S	FRICTIO N LOSS FT	ENTREXIT LOSS FT	TOTAL HEAD FT	DOWNSREAM ELEVATION	UPSTREAM ELEVATION	UPSTREAM INLET
Units	Pipe																				
Formula						$Q=CIA$						$P=rD$	$A=rr^2$	$Rh=A/P$	Sum Q	Sum Q/A					
Site Conditions														Submerged Pipe							
	P1	S-1	0.266	8.5	0.9	2.03	142	18.0	RCP	0.012	4.71	1.77	0.38	2.03	1.15	0.04	0.00	0.05	3.15	3.19	3.20
	P2	S-2	0.361	8.5	0.93	2.85	50	24.0	RCP	0.012	6.28	3.14	0.50	4.89	1.56	0.05	0.00	0.05	3.09	3.15	3.20
	P3	S-3	0.071	8.5	0.95	0.57	92	18.0	RCP	0.012	4.71	1.77	0.38	0.57	0.32	0.00	0.00	0.00	3.10	3.11	3.20
	P4	S-4	0.075	8.5	0.95	0.61	80	18.0	RCP	0.012	4.71	1.77	0.38	1.18	0.67	0.01	0.00	0.01	3.09	3.10	3.40
	P5	S-5	0.111	8.5	0.95	0.90	90	18.0	RCP	0.012	4.71	1.77	0.38	2.08	1.17	0.04	0.00	0.04	3.05	3.09	3.40
	P6	S-6	0	8.5	0.4	0.00	107	30.0	RCP	0.012	7.85	4.91	0.63	6.96	1.42	0.05	0.00	0.05	3.00	3.05	3.54
	P7	S-7	0.527	8.5	0.94	4.21	29	30.0	RCP	0.012	7.85	4.91	0.63	11.17	2.28	0.09	0.01	0.10	1.50	3.10	3.21

NO.	DATE	DESCRIPTION

ROSE MARINA REDEVELOPMENT PLANS

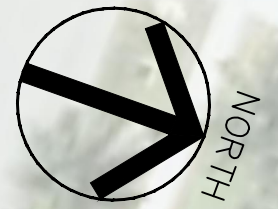
CITY OF MARCO ISLAND COLLIER COUNTY, FLORIDA

HAGAN ENGINEERING
 1250 TAMiami TRAIL N., STE. 203B
 Naples, Florida 34102
 Phone (239) 851-8239

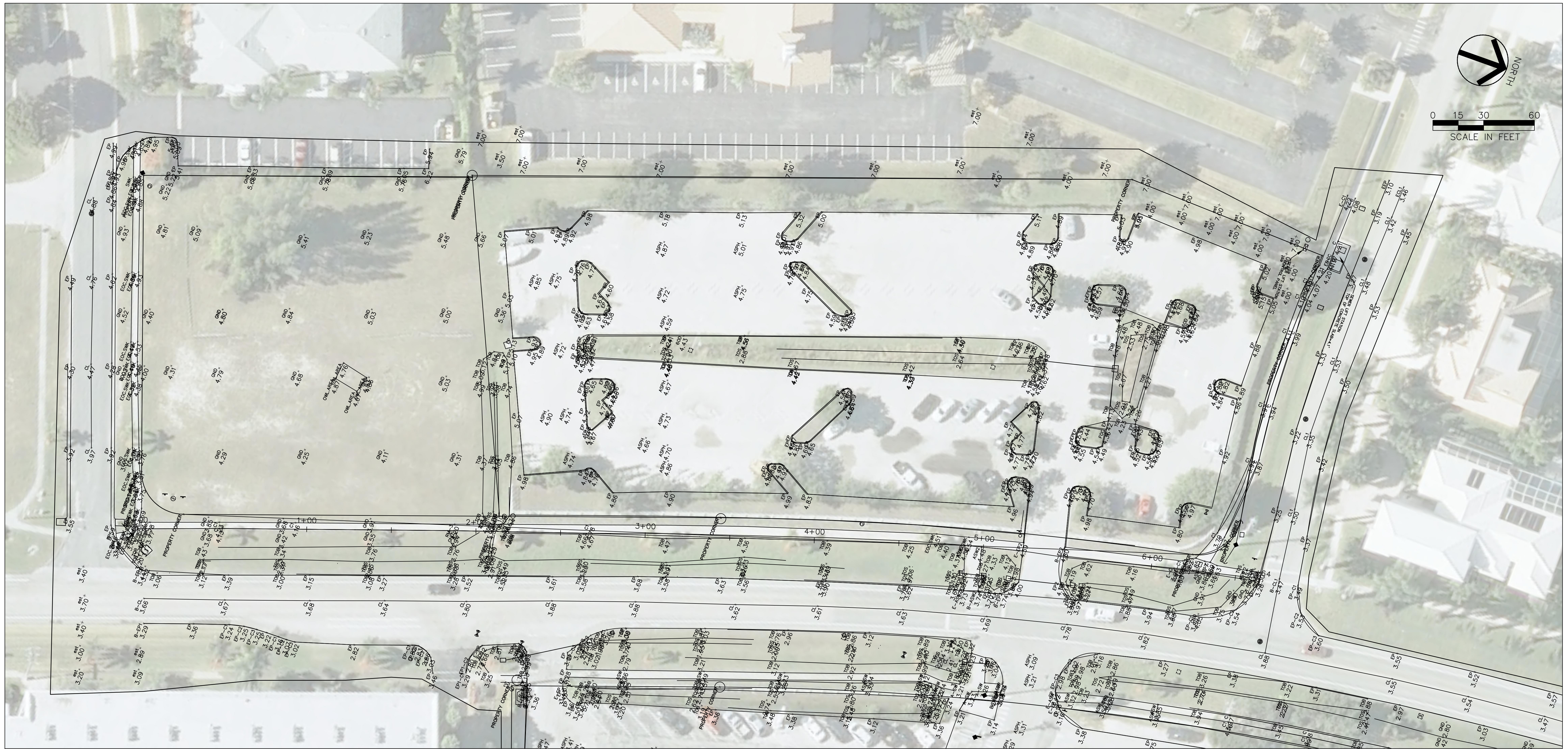
PERMIT PLANS

MASTER DRAINAGE PLAN - EAST

C. D. HAGAN, P.E. FL REG. #38649 EB #29474 DATE:	DATE: 09-20-14	PROJECT NO.: 2014-077	SCALE: As Shown	SHEET: C-6
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SCALE IN FEET



DATA TAKEN FROM AUGUST 6, 2013 ABB
SURVEY OVER 2012 COLLIER COUNTY AERIAL

REVISIONS

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA



PERMIT PLANS

EXISTING CONDITIONS - WEST

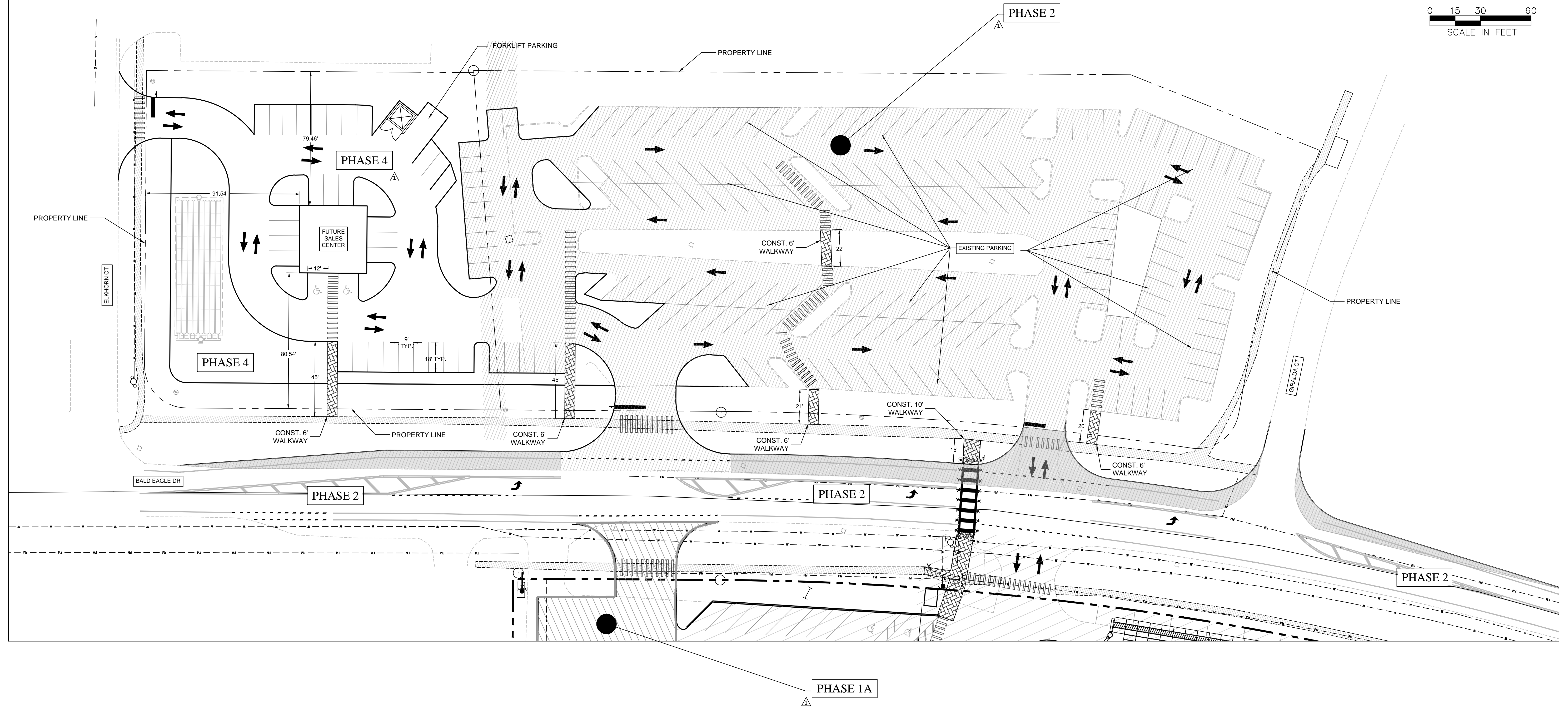
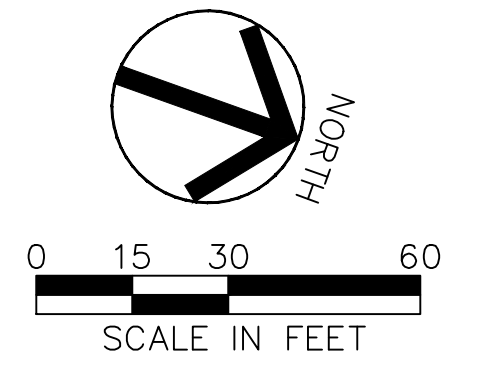
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DATE
09-20-14

PROJECT NO.
2014-077

SCALE
As Shown

SHEET
C-8



NOTES:
 1. LANDSCAPING, LIGHTING, AND CITY OF MARCO UTILITY DETAILS ARE PROVIDED AS SEPARATE ATTACHED PLAN SETS. SEE COVER SHEET FOR DETAILS.

REVISIONS	

ROSE MARINA
 REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
 COLLIER COUNTY, FLORIDA

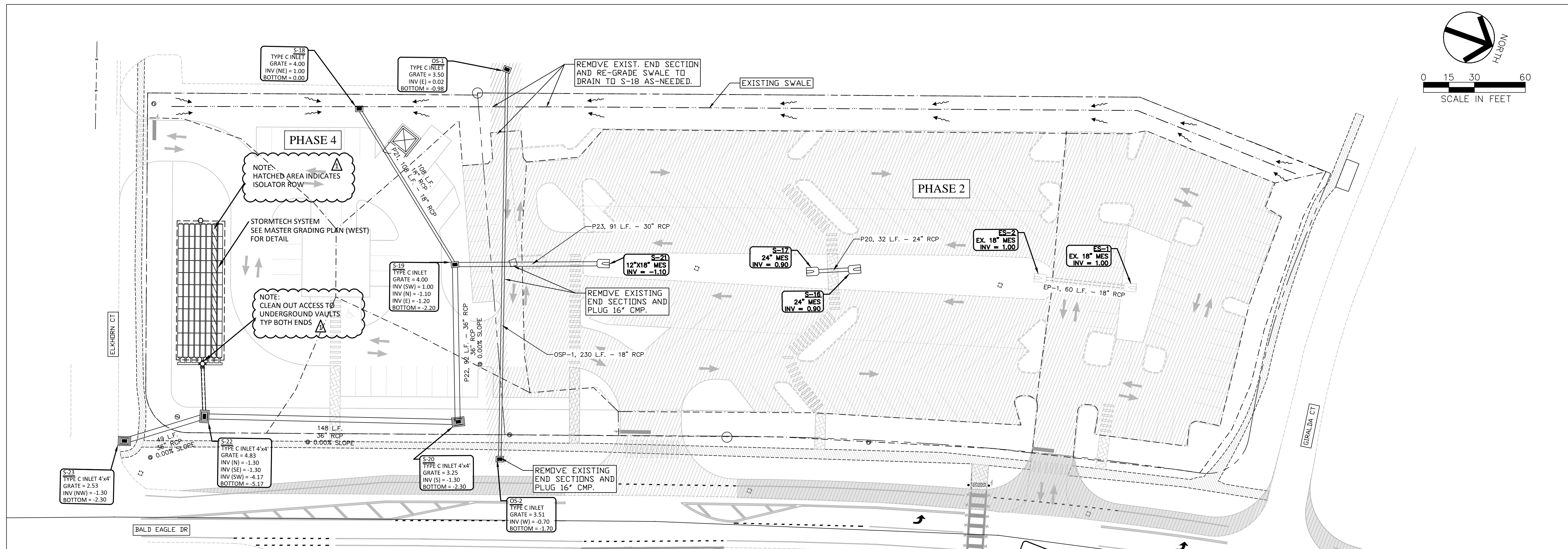
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PERMIT PLANS

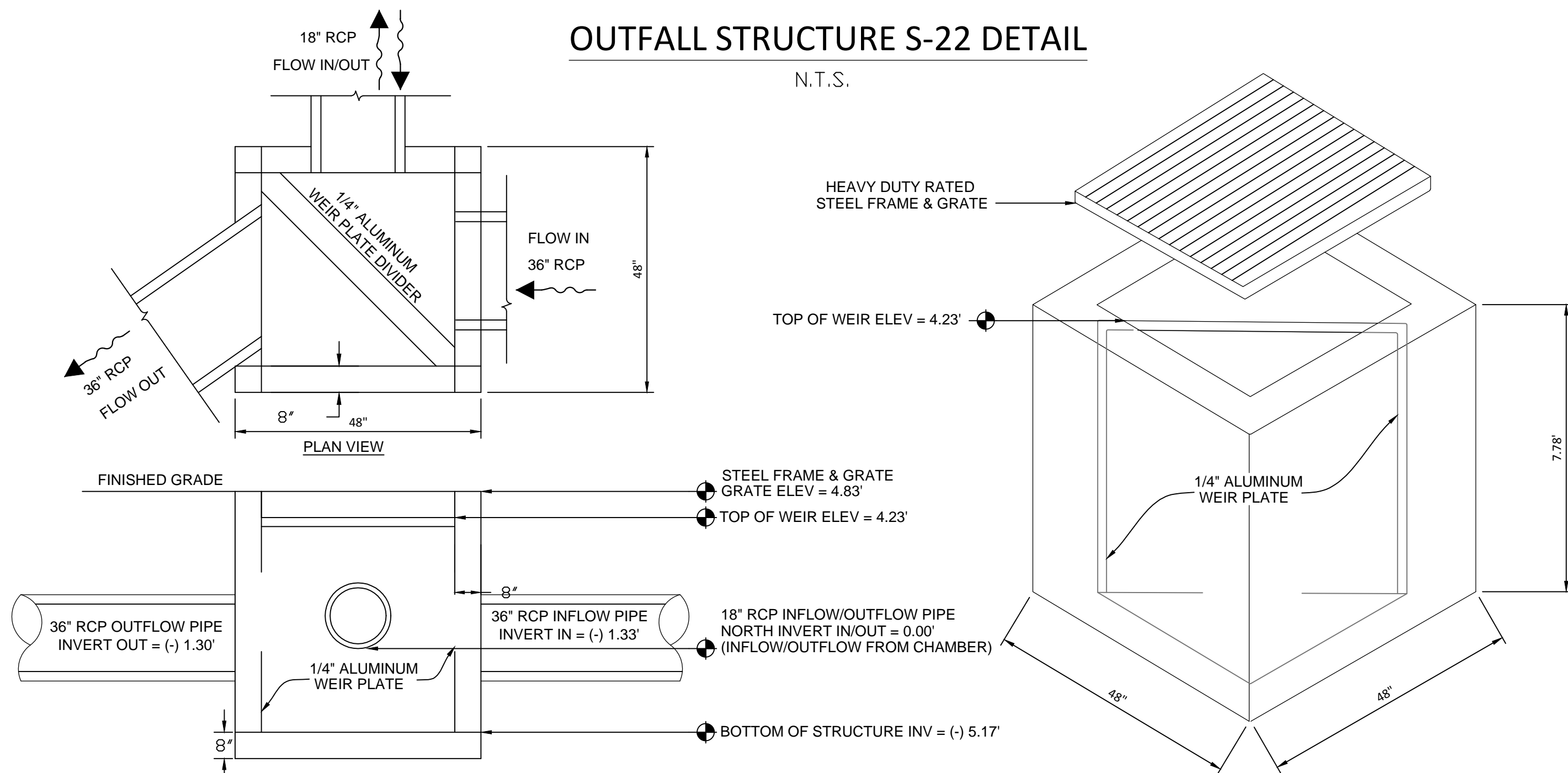
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 DATE: 09-20-14

MASTER SITE PLAN - WEST			
DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	C-9



OUTFALL STRUCTURE S-22 DETAIL

N.T.S.



DIVERTER WEIR
48" X 48" MODIFIED INLET W\ STEEL FRAME & GRATE

CHURCH	PIPE		DRAINAGE BASIN				PIPE CONDITIONS				FLOW HYDRAULICS				HYDRAULIC GRADIENT						
	Pipe	From To	FROM STR. Acres	i (Rainfall) in/hr	C (Runoff Coefficient) Unitless	Q (Increme) CFS Q=CIA	LENGTH ft	DIA. in	TYPE	n Unitless	P ft	A sf	Rh Unitless Rh=A/P	Q (cum.) CFS	V (Q/A) FT/S	FRICTIO N LOSS FT	ENT/EXIT LOSS FT	TOTAL HEAD FT	DOWNSTREAM ELEVATION	UPSTREAM ELEVATION	UPSTREAM INLET
				8.5	0.8																
			1.5	8.5	0.8	10.20													1.50	3.03	3.50
	OSP -1	CHURCH OUTLET					230	18.0	RCP	0.012	4.71	1.77	0.38	10.20	5.77	1.48	0.05	1.53			
																			1.50		
West Side Run																					
				8.5	VARIES																
	EP-1	ES-2	0.467	8.5	0.86	3.41	60	18.0	RCP	0.012	4.71	1.77	0.38	3.41	1.93	0.09	0.01	0.09	3.35	3.44	3.20
	P-20	S-16	0.47	8.5	0.82	3.28	23	24.0	RCP	0.012	6.28	3.14	0.50	6.69	2.13	0.08	0.01	0.09	3.26	3.35	3.20
	P-23	S-21	0.69	8.5	0.87	5.10	85	30.0	RCP	0.012	7.85	4.91	0.63	11.79	2.40	0.13	0.01	0.14	3.27	3.42	3.20
	P-21	S-18	0.44	8.5	0.34	1.27	108	18.0	RCP	0.012	4.71	1.77	0.38	1.27	0.72	0.02	0.00	0.02	3.26	3.27	3.40
	P-22	S-19	0.26	8.5	0.85	1.88	92	36.0	RCP	0.012	9.42	7.07	0.75	14.94	2.11	0.10	0.01	0.11	3.15	3.26	3.40
	P-24	S-20	0.2	8.5	0.80	1.36	141	36.0	RCP	0.012	9.42	7.07	0.75	16.30	2.31	0.14	0.01	0.15	3.00	3.15	3.54
	P-25	S-22	0.385	8.5	0.80	2.62	54	36.0	RCP	0.012	9.42	7.07	0.75	18.92	2.68	0.14	0.01	0.15	3.00	3.15	3.21

NO.	REVISIONS

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA



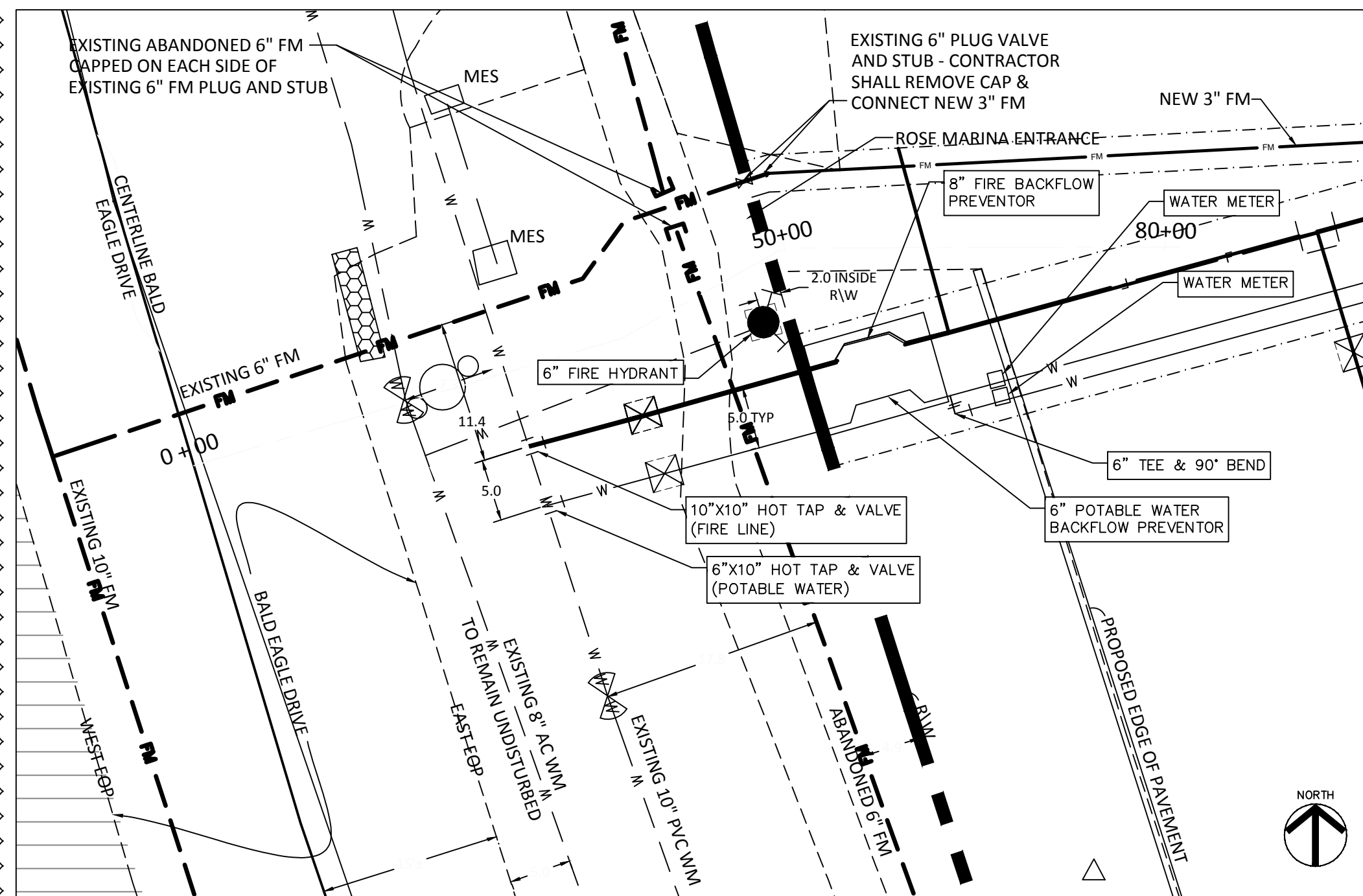
PERMIT PLANS

MASTER DRAINAGE PLAN - WEST

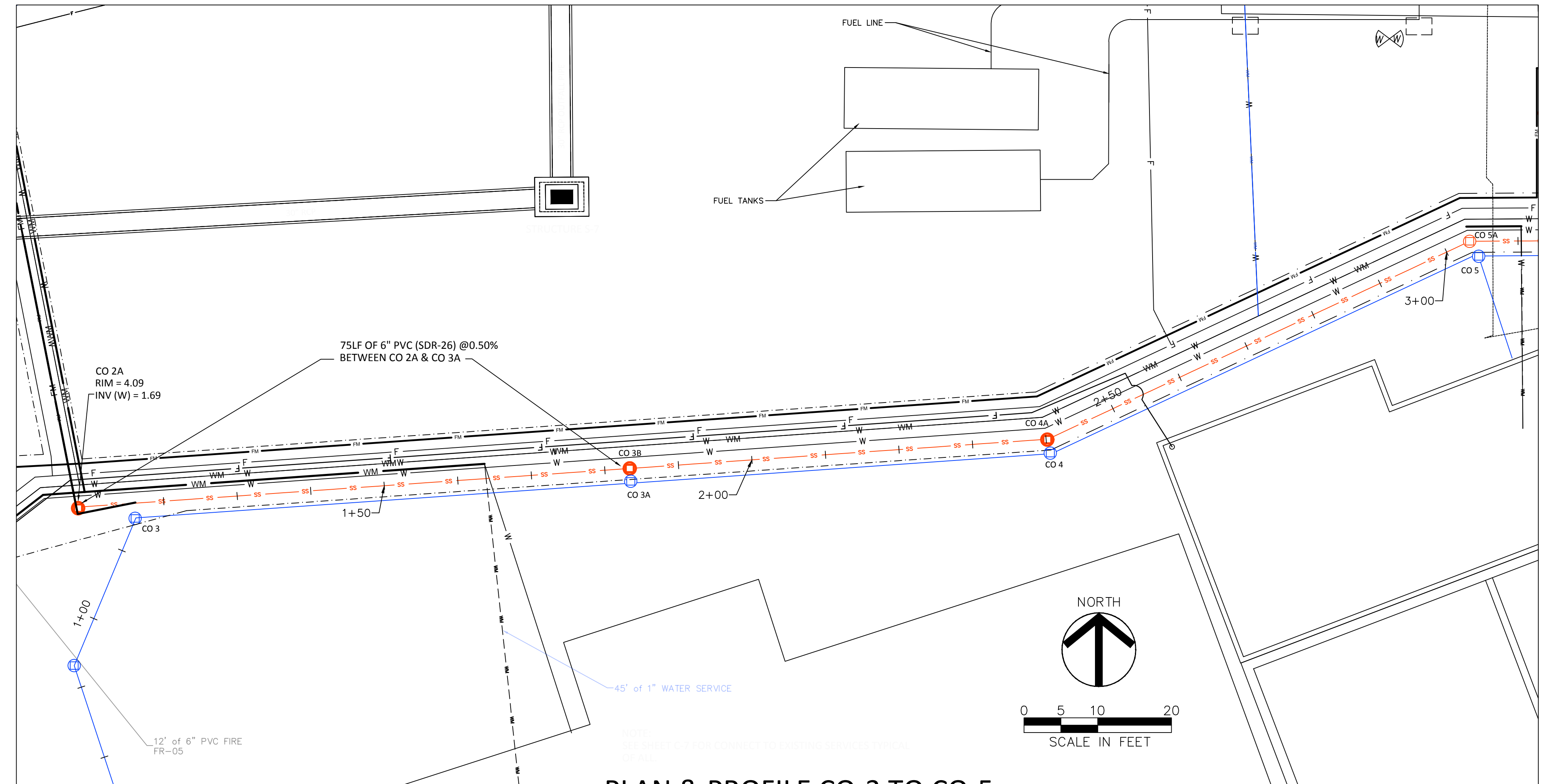
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DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	C-11

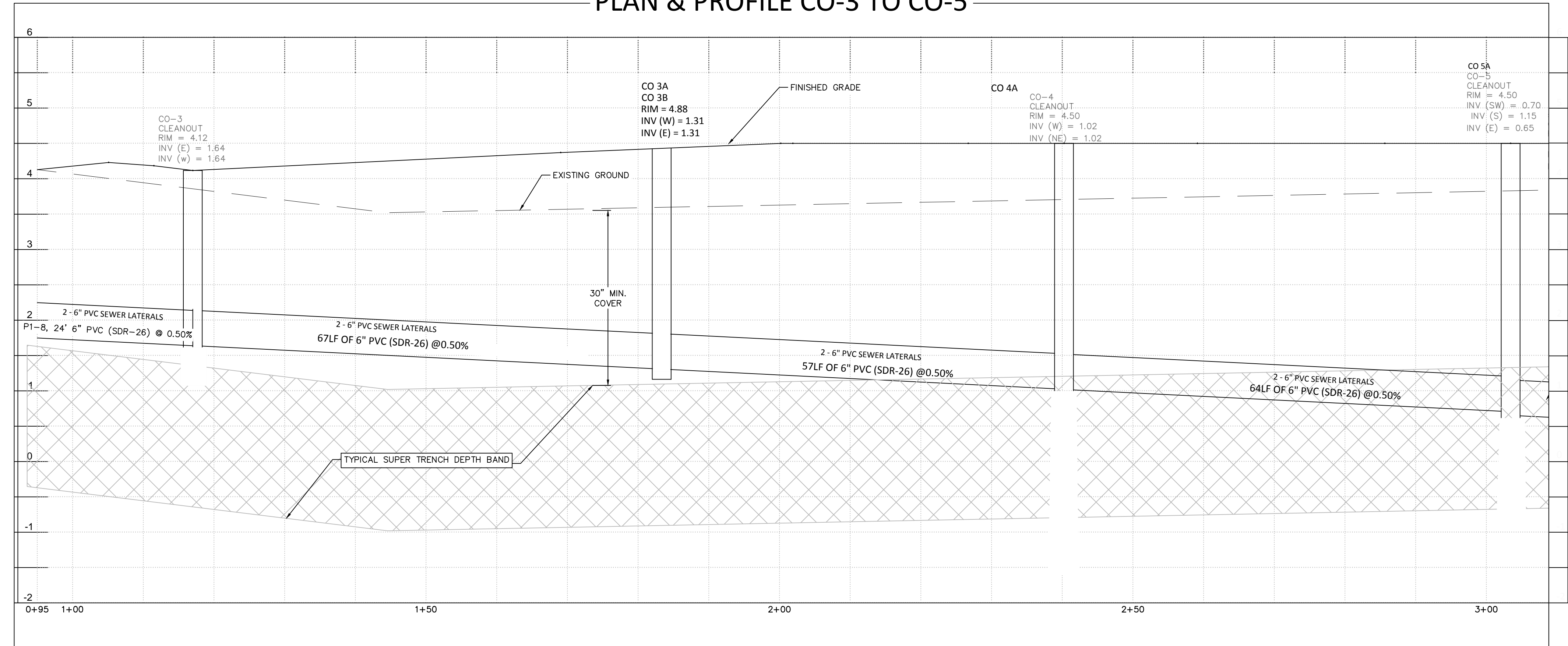
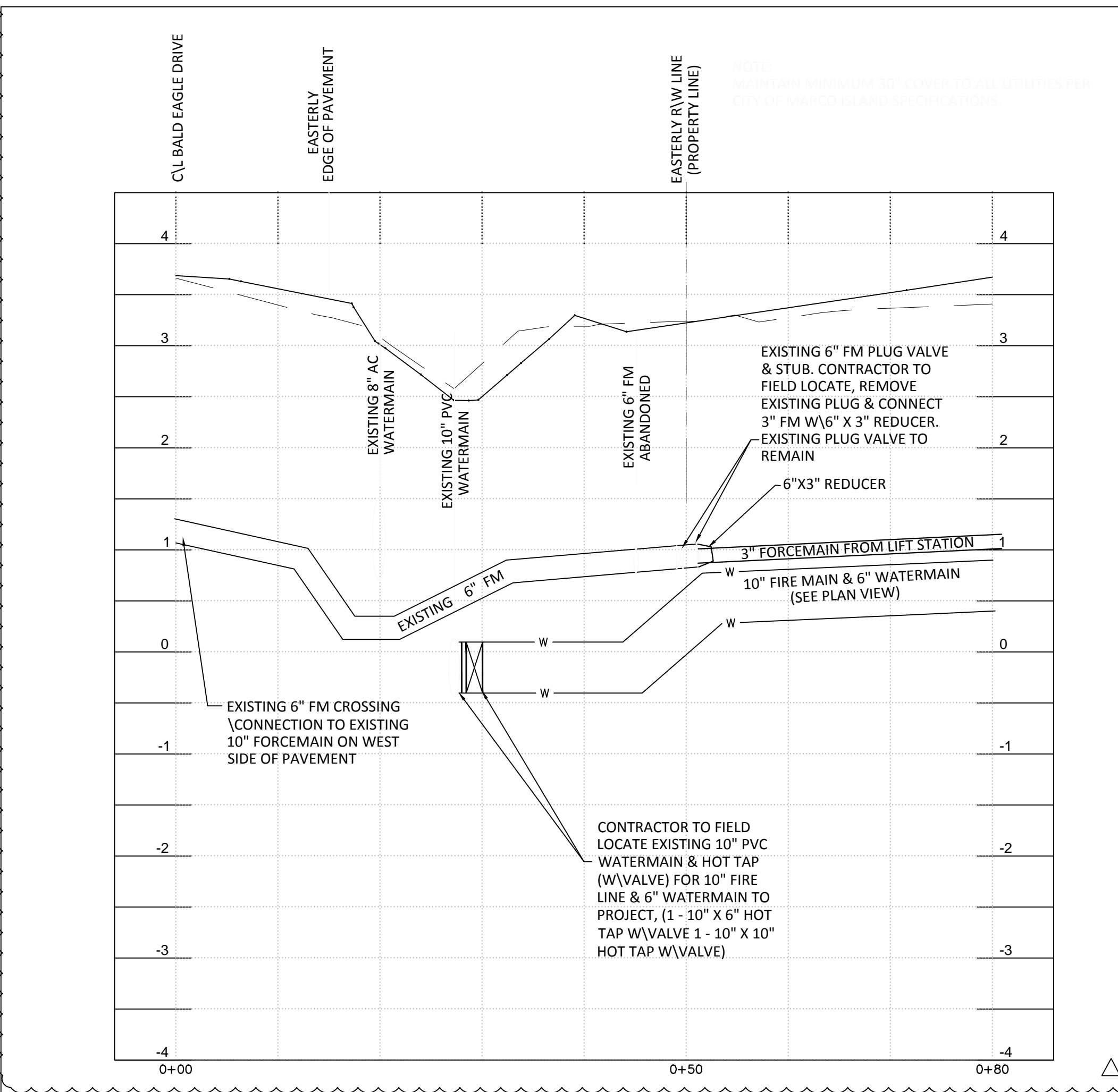
NOTE:
EXISTING UTILITY INFORMATION SHOWN PER CITY OF MARCO ISLAND NORTH MARCO SEWER DISTRICT WASTEWATER COLLECTION SYSTEM EXPANSION
CONTRACT NO. 07-008 RECORD DRAWINGS PREPARED BY BOYLE ENGINEERING CORPORATION, DATED: 2/20/09.



PLAN & PROFILE ENTRANCE



PLAN & PROFILE CO-3 TO CO-5



REVISIONS	

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA



PERMIT PLANS

PLAN AND PROFILE

C. D. HAGAN, P.E. FL REG. #38649 EB #29474 DATE:	DATE 09-20-14	PROJECT NO. 2014-077	SCALE As Shown	SHEET C-13
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Rose Marina - Sewage Flow Calculations

The project is the existing Rose Marina that is in the process of being renovated. The project is divided into two parcels for development. On the west side of Bald Eagle Drive there will be parking lot renovations and construction of a new boat sales facility. The new sales facility will connect to existing water and sewer stubs on Elkhorn Drive with the appropriate backflow protection on the water service and sanitary sewer service connection. The east side is an existing marina that will be going under significant renovation and remodeling. This renovation and remodeling will include increasing the onsite water and sewer demand. The following calculations are provided to outline the changes in the proposed sewage collection and pump station main design. The east side renovations include the design of the new master pump station and grease trap. Currently the facility includes two boat pump outs, a small grinder pump that moves sewage to the master pump station and one master pump station that is tied into the City force main. All of this is to be replaced with a centralized master pump station. The new sewage collection system is all designed to receive the flow through a grease trap before being introduced to the master pump station. From that master pump station it will be pumped out to the City's force main.

In order to support the design calculations for the pump station and grease trap we estimate the eastern sewage flow as follows:

- Marco Princess: 100 dinner passengers @ 5 GPD/passenger = 500 GPD (avg. daily)
- 15 GPM is Max. pump flow for the peak hour.
- Confirm Princess tank is 250 Gal pumped out approximately 50 Gal/day for an average.
- Jack's Lookout: 38 seat restaurant @ 30 GPD/seat = 1,140 GPD (avg. daily).
- Peak hour (PF=4.0) = 3.17 GPM (peak hour) Max. pump flow estimated at 20 GPM
- T-Dock Pump Out: 15 boats/day avg. @ 10 Gal/boat = 150 GPD (avg. daily)
- Peak hour is Max. pump flow of 15 GPM
- Ship Store: 8,365 SF @ 0.10 GPD/SF + 70% of 106 slips @ 40 GPD/slip = 3,804 GPD
- Peak hour (PF=4.0) = 10.6 GPM
- Round Building: 1,369 SF @ 0.20 GPD/SF + 30% of 106 slips @ 40 GPD/slip = 1,546 GPD
- Peak hour (PF=4.0) = 4.3 GPM
- New Offices: 5,850 SF @ 0.20 GPD/SF = 1,170 GPD (avg. daily) Peak hour (PF=4.0) = 3.25 GPM
- Service Center: 4,940 SF of Boat's Lounge @ 40 visitors/day @ 10 GPD/visitor = 400 GPD plus 15 Service Center employees @ 20 GPD each = 300 GPD for a total of 700 GPD (avg. daily) Peak hour (PF=4.0) = 3.40 GPM

The peak flows for the project are going to include the two pumped flows on top of the peak hour flows from each of the listed sources. This runs us to a grand total of 54,72 gallons per minute being the peak hour flow. This also leaves us with an average daily flow of 9,010 gallons per day. The pump station will need to be designed to accommodate both these conditions.

Grease trap calculations
Currently the system does not have a grease trap. Marco Island has been dealing with grease issues at the sewage treatment plant and has requested that the site be retrofitted with new grease traps to accommodate any grease sources. Currently there is only grease introduced into the sewage collection system at Jack's Lookout and in the Marco Princess pump out. Based on this we have made the following grease trap calculations:

- Grease Trap: $S \times GS \times H \div 12 \times LF = M \times GM \div LF$
- Jack's - (18 seats) $30 \text{ GPD} \times 11 \text{ H} \div 12 \times 125 = 1,306 \text{ gal}$
- Princess - (100 meals) $105 \text{ GPD} \times 10 \times 10 = 500 \text{ gal}$
- Total = 1,806 Gallons

Based on City ordinance we will provide one 1,250 gallon grease trap in series with a 750 gallon grease trap to provide 2,000 gallons of grease trap volume.

Should an additional restaurant or other use be added a grease trap will be sized and located in between the source and the pump station to ensure that grease is removed from the network.

Pump Station Design

Discharge is via 350 feet of 3" force main. It ties into an existing force main on Bald Eagle Drive. The existing force main has a design pressure of 65 psi (150 ft) at the connection point. It is designed to accommodate an average daily flow of 9,010 gpd with a peak hour flow of 54.72 gpm.

The pump will be set at Elevation +4.0 NAVD. The force main high point will be at Elevation +1.0 NAVD. The static head result is 5.0 feet.

The peak flow of 54.72 gpm yields a friction head loss of 2.5 feet. This generates 2.5 ft in the 3" force main, which is above the 2 ft minimum.

Total head is static + friction + pressure = 5.0 + 2.5 + 15.0 = 17.5 feet head.

The operating point for the pump station needs to provide 55 gpm at a total head of 17.5 feet.

Pump Type
Impeller: NPS127 FLYGT
Pump Horsepower: 11 HP
Pump Voltage: 200 Volts
Pump Phase: 3 Phase

Pump Curve (attached)
Design Pumping Rate (Q_{dp}): 60 gpm at 158 TDH
QAVG = 6.3 gpm

Wet Well Design
Inside Wet Well Diameter: 6 feet
Wall Thickness: 8.75 inches
Slab Diameter: 8.75 feet
Slab Thickness (1 ft typical): 1.0 feet
Finished Grade (see actual slab elevation): +3.5 NAVD
Inflow Elevation: +0.0 NAVD
Wet Well Interior Cross-Sectional Area: 28.27 square ft
Storage Depth (2 ft min): 2.0 feet
Actual Storage Provided: 423 gallons
High Water Alarm: +0.5 NAVD
Low Water Alarm: -1.0 NAVD
Lead On: -1.5 NAVD
Pump Off: -2.0 NAVD
Bottom Elevation: -4.0 NAVD

Flow Calculations
1. Force Up on Cylinder
Total Wet Well Cross-Sectional Area x (Finished Grade - Bottom Elevation) x 62.4 lb/cubic ft
(where Total Wet Well Cross-Sectional Area = π x r²)
(inside wetwell diameter = 2 x wall thickness / 12in) = 19,803 lb up

2. Force Up on Slab
π x (slab Diameter)² x Slab Thickness x 62.4 lb/cubic ft = 3,710 lb up

3. Total Buoyancy Force
Force Up on Cylinder + Force Up on Slab = 23,513 lb up

4. Cylinder Weight (does not include top slab)
(Total Wet Well Cross-Sectional Area - Inside Wetwell cross-sectional Area) x (Finished Grade - Top Slab Thickness) x 150 lb/cf = 15,790 lb down

5. Slab Weight
π x (slab Diameter)² x Slab Thickness x 150 lb/cf = 8,917 lb down

6. Net Overburden (Does not consider top slab)
(Area of Slab - Total Cross-Sectional Wetwell Area) x (Finished Grade - Bottom Elevation - Top) x 137.4 lb/cubic ft = 4,188 lb down

7. Total Downward Force
Cylinder Weight + Slab Weight + Soil Overburden = 28,895 lb down

8. Net Force
Total Downward Force - Total Buoyancy Force = 5,382 lb down

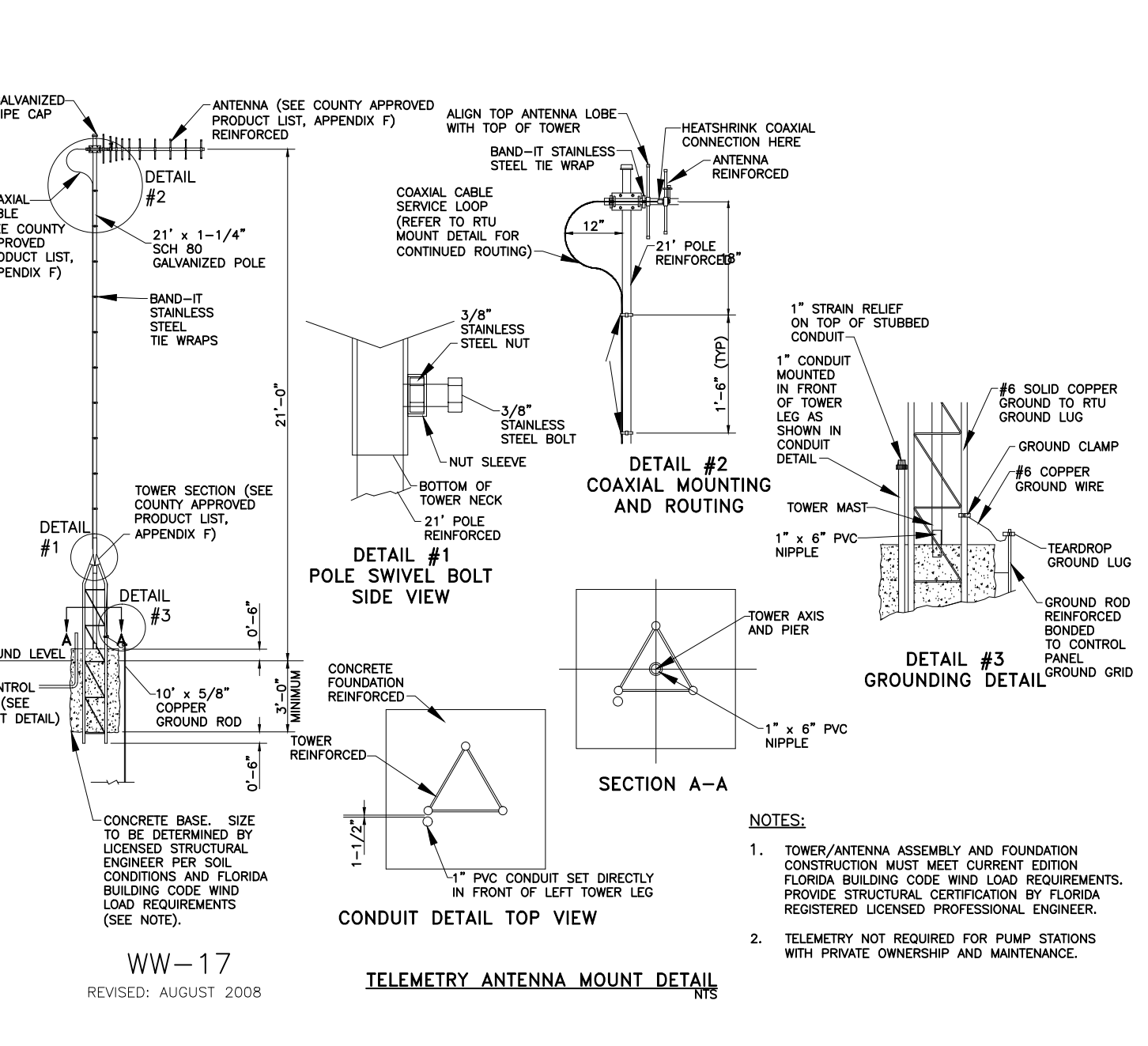
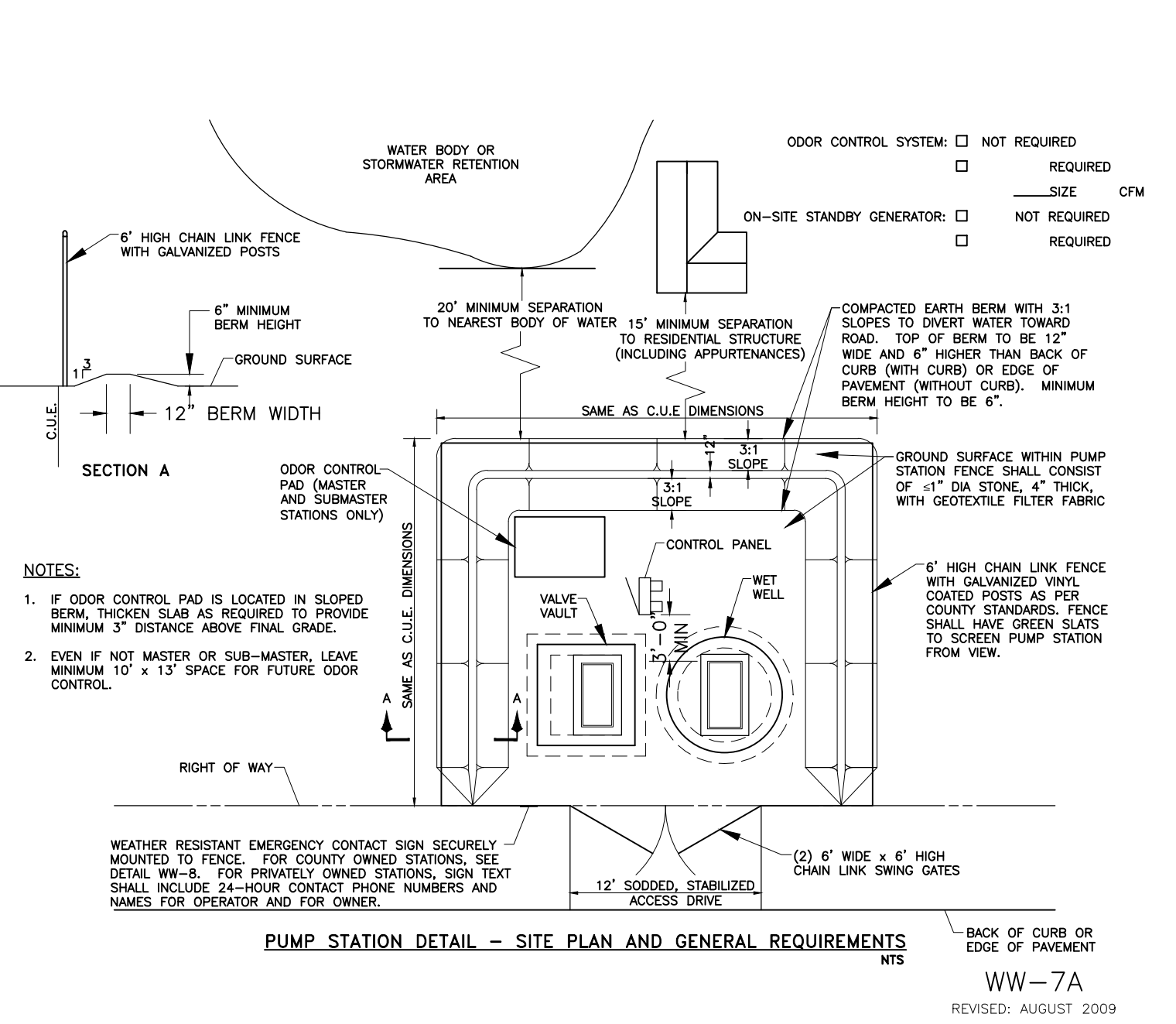
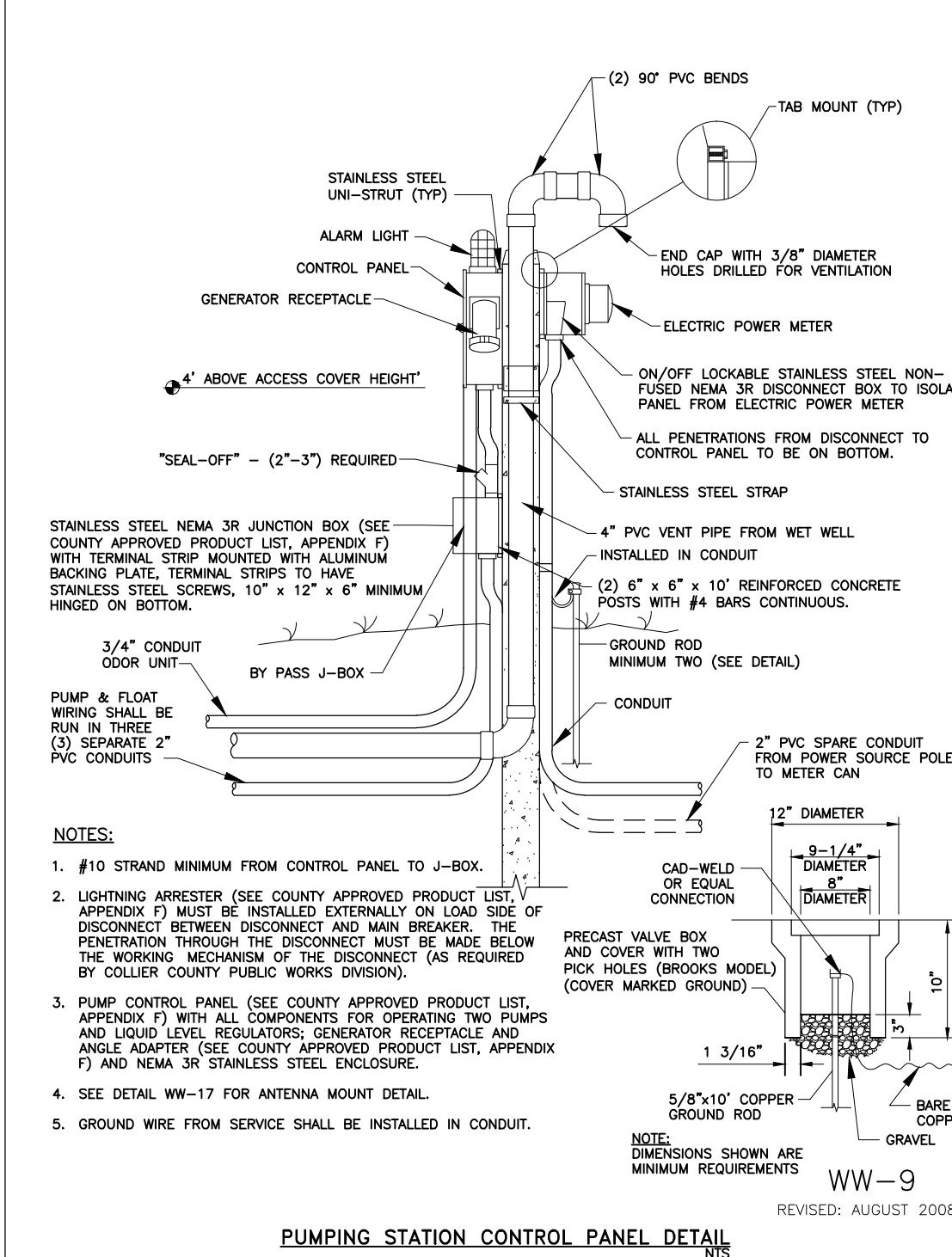
Pump Run and Cycle Times (6 Wetwell)

- Minimum Pump Run Time (min. 2.5 minutes)
 - Time = Volume of Wet Well / Design Pumping Rate - Time = 7.1 minutes
 - Pumping Station Cycle Time At Average Flow Conditions
- The time for one pump cycle under average flow conditions (in minutes) (minimum 2 cycles / hour or 30 minutes / cycle)
Time = (Vavg / Qdp - Qavg) / (Vavg / Qavg)
Time = 73 minutes/cycle or 0.8 cycles/hour
- Pumping Station Cycle Time At Interim Peak Flow Conditions**
Time for one pump cycle under peak hour flow (in minutes) (maximum 10 cycles/hour or 6 minutes/cycle)
Time = (Vavg / Qdp) / (Vavg / Qavg)

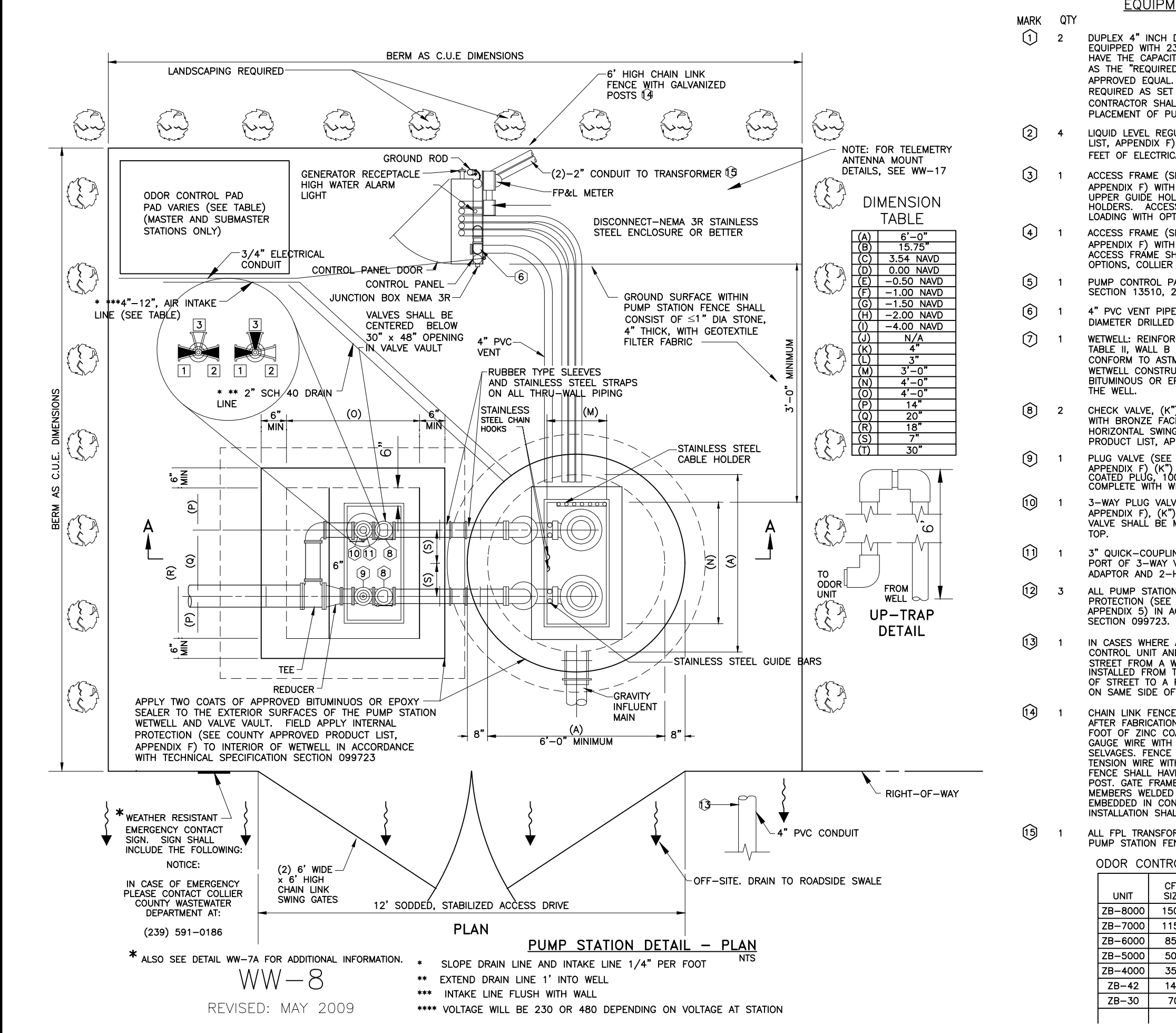
Wet Well Design

6 feet
8.75 inches
1.0 feet
+3.5 NAVD
+0.0 NAVD
28.27 square ft
2.0 feet
423 gallons
+0.5 NAVD
-1.0 NAVD
-1.5 NAVD
-2.0 NAVD
-4.0 NAVD

- #10 STRAND MINIMUM FROM CONTROL PANEL TO J-BOX.
- LIGHTING ARRESTER (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) MUST BE INSTALLED EXTERNALLY ON LOAD SIDE OF DISCONNECT BETWEEN DISCONNECT AND MAIN BREAKER. THE PENETRATION THROUGH THE DISCONNECT MUST BE MADE BELOW THE WORKING MECHANISM OF THE DISCONNECT (AS REQUIRED BY COLLIER COUNTY PUBLIC WORKS DIVISION).
- PUMP CONTROL PANEL (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) WITH ALL COMPONENTS FOR OPERATING TWO PUMPS AND LIQUID LEVEL REGULATORS, GENERATOR RECEPTACLE AND ANGLE ADAPTOR (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) AND NEMA 3R STAINLESS STEEL ENCLOSURE.
- SEE DETAIL WW-17 FOR ANTENNA MOUNT DETAIL.
- GROUND WIRE FROM SERVICE SHALL BE INSTALLED IN CONDUIT.



PUMP STATION CALCULATIONS

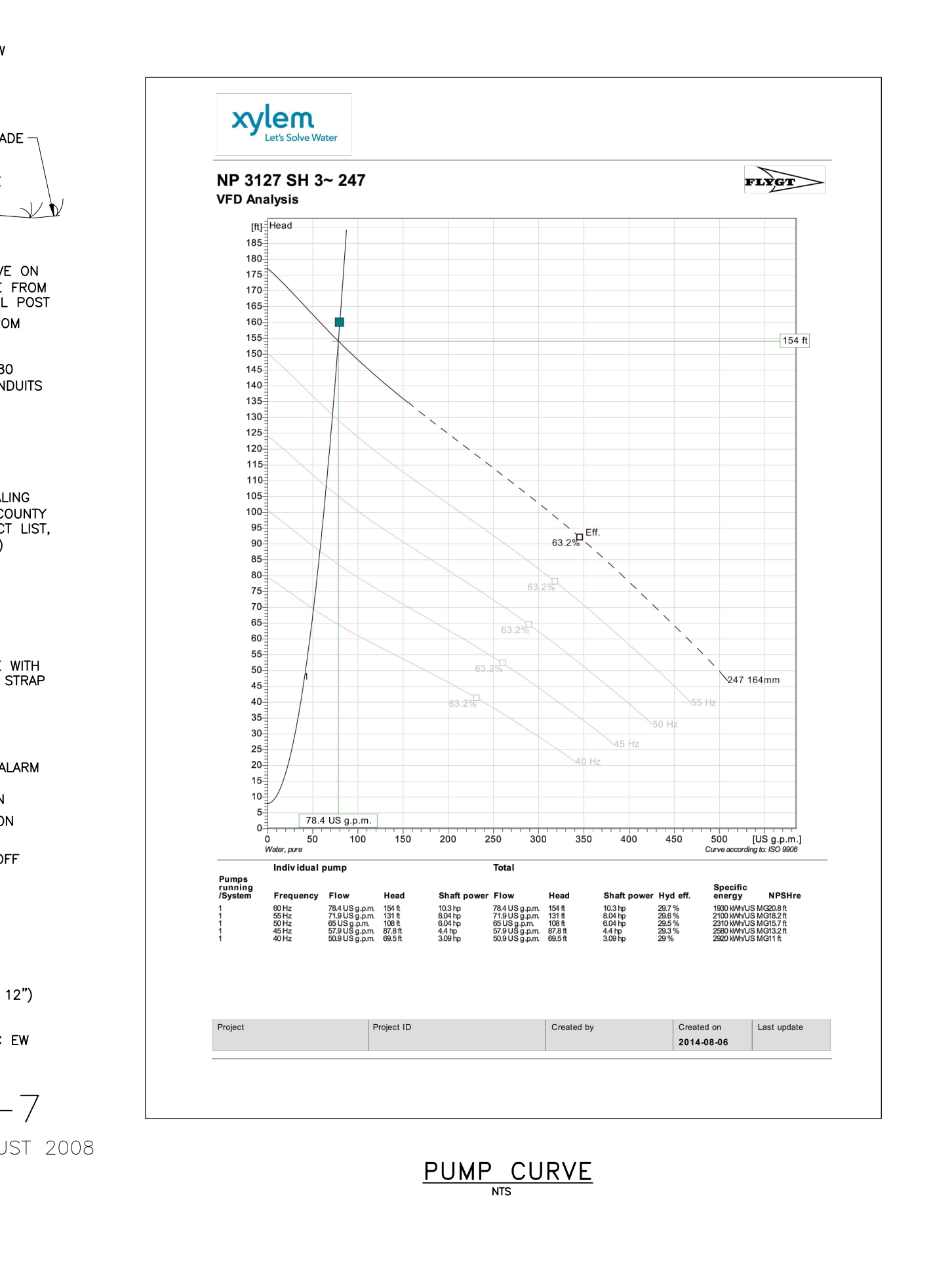
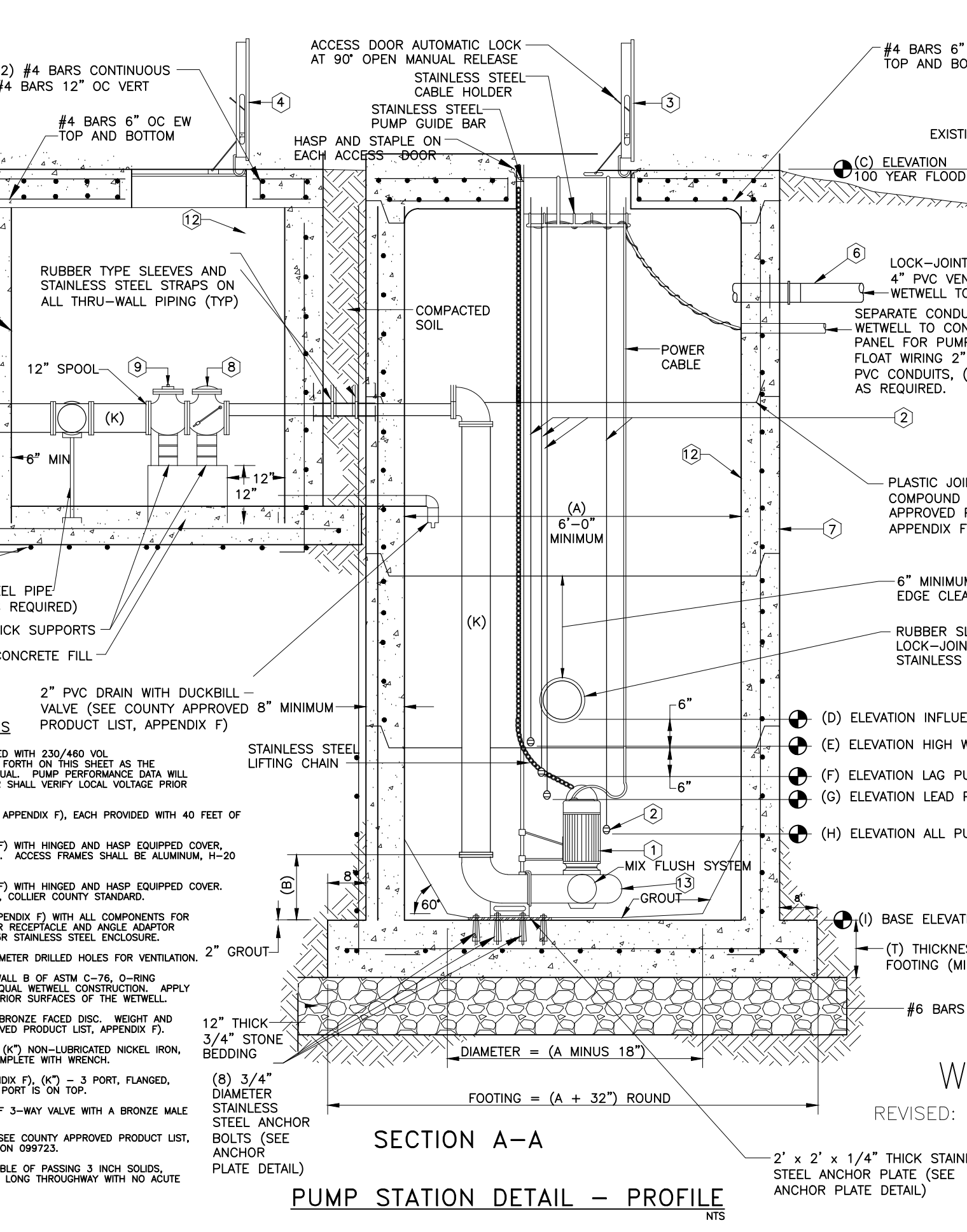
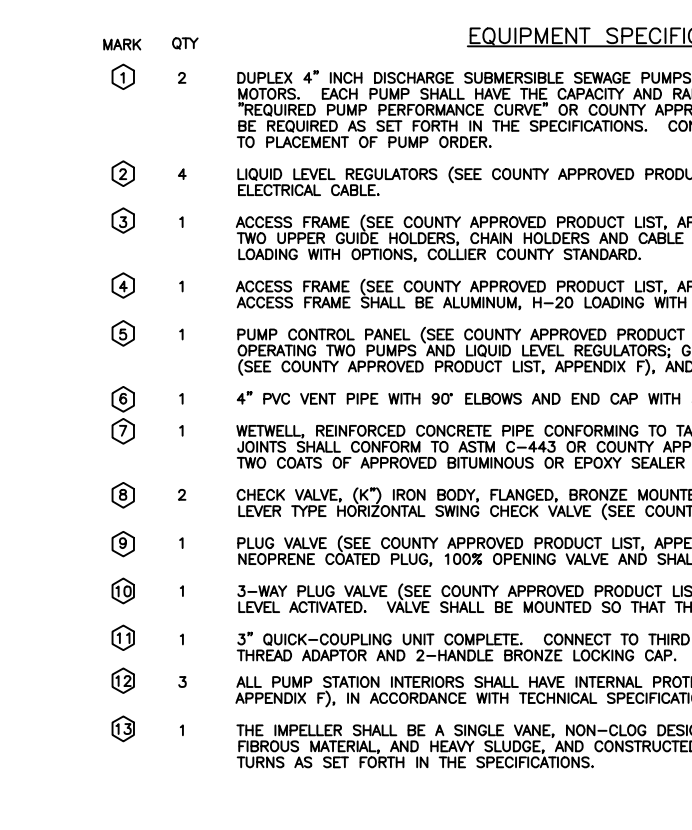
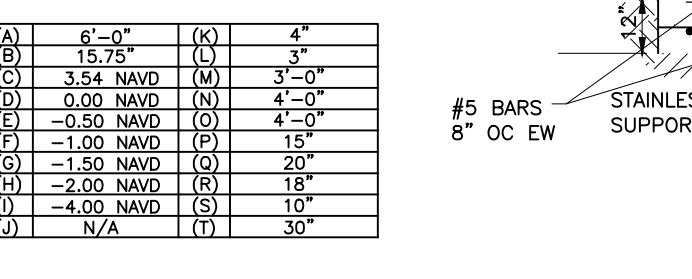
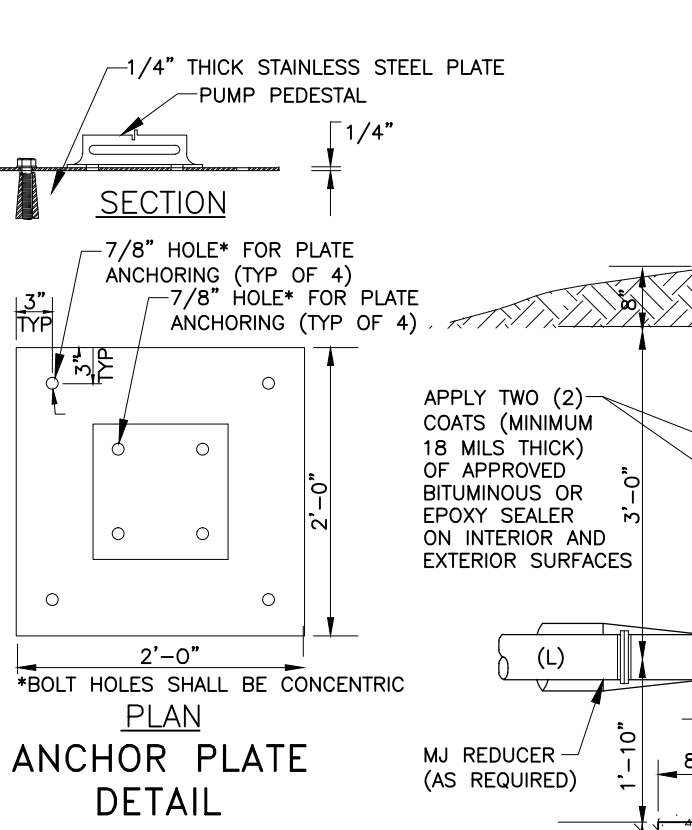


EQUIPMENT SPECIFICATIONS

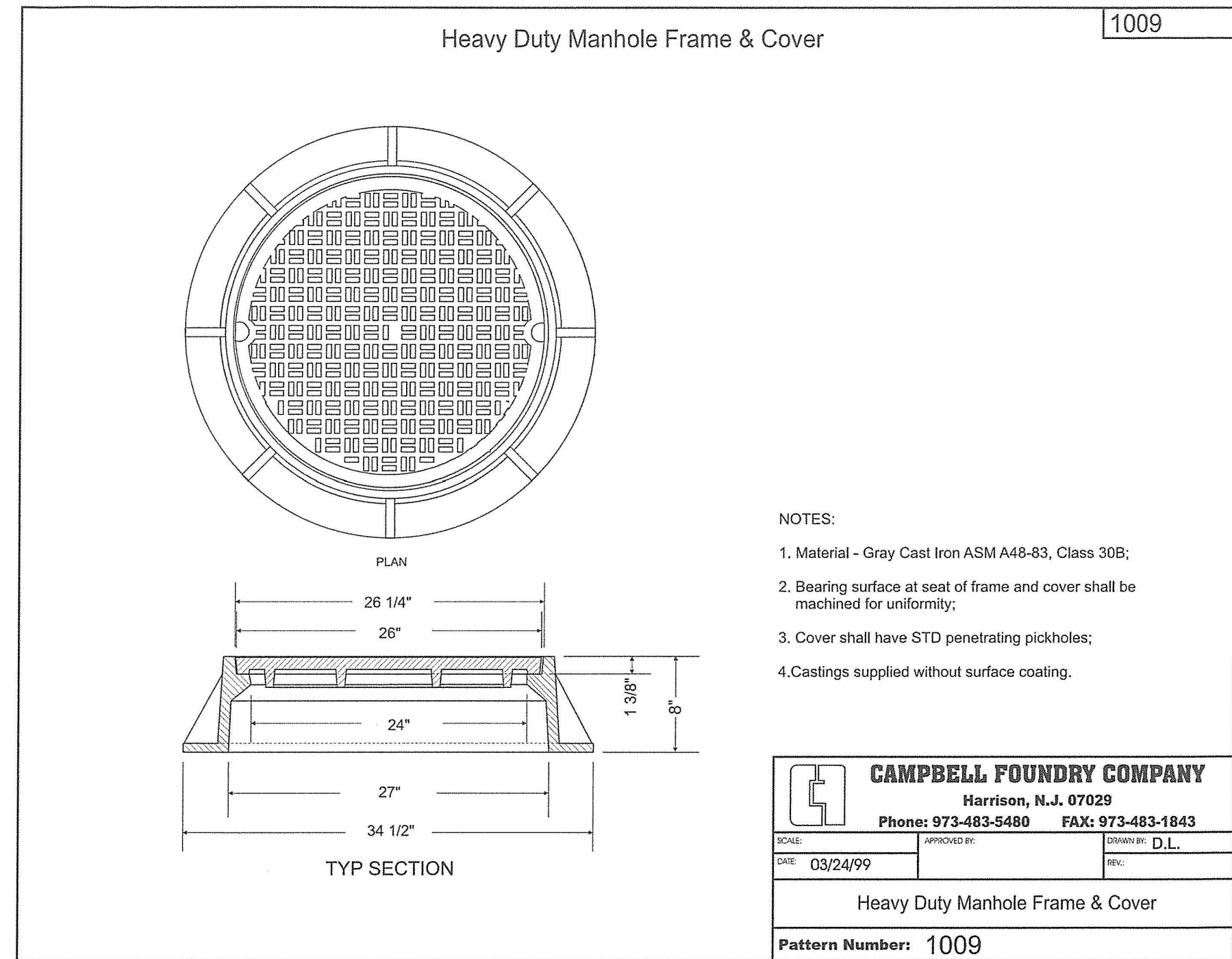
- 2 DUPLEX 4" INCH DISCHARGE SUBMERSIBLE SEWAGE PUMPS EQUIPPED WITH 230/460 VOLT MOTORS. EACH PUMP SHALL HAVE THE CAPACITY AND RANGE SET FORTH ON THIS SHEET AS THE REQUIRED PUMP PERFORMANCE CURVE OR COUNTY APPROVED EQUAL. PUMP PERFORMANCE DATA WILL BE REQUIRED AS SET FORTH IN THE SPECIFICATIONS. CONTRACTOR SHALL VERIFY LOCAL VOLTAGE PRIOR TO PLACEMENT OF PUMP ORDER.
- 4 LIQUID LEVEL REGULATORS (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F), EACH PROVIDED WITH A MINIMUM OF 40 FEET OF ELECTRICAL CABLE.
- 1 ACCESS FRAME (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) WITH HINGED AND HASP EQUIPPED COVER, TWO UPPER GUIDE HOLDERS, CHAIN HOLDERS, AND CABLE HOLDERS. ACCESS FRAMES SHALL BE ALUMINUM, H-20 LOADING WITH OPTIONS, COLLIER COUNTY STANDARD.
- 1 ACCESS FRAME (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) WITH HINGED AND HASP EQUIPPED COVER. ACCESS FRAME SHALL BE ALUMINUM, H-20 LOADING WITH OPTIONS, COLLIER COUNTY STANDARD.
- 1 PUMP CONTROL PANEL (SEE TECHNICAL SPECIFICATIONS SECTION 09923).
- 1 4" PVC VENT PIPE WITH 90° ELBOWS & END CAP WITH 3/8" DIAMETER DRILLED HOLES FOR VENTILATION.
- 1 WETWELL REINFORCED CONCRETE PIPE CONFORMING TO TABLE II, WALL B OF ASTM C-76, CURING JOINTS SHALL CONFORM TO ASTM C-443 OR COUNTY APPROVED EQUAL. WETWELL CONSTRUCTION: APPLY TWO COATS OF APPROVED BITUMINOUS OR EPOXY SEALER ON EXTERIOR SURFACES OF THE WELL.
- 2 CHECK VALVE (K*) IRON BODY, FLANGED, BRONZE MOUNTED WITH BRONZE FACED DISC. WEIGHT AND LEVER TYPE. HORIZONTAL SWING CHECK VALVE (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F).
- 1 PLUG VALVE (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) (K*) NON-LUBRICATED NICKEL IRON, NEOPRENE COATED PLUG, 100% OPENING VALVE AND SHALL BE COMPLETE WITH WRENCH.
- 1 3-WAY PLUG VALVE (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX F) (K*) = 3 PORT, FLANGED, LEVEL ACTIVATED. VALVE SHALL BE MOUNTED SO THAT THE THIRD PORT IS ON TOP.
- 1 3" QUICK-COUPLING UNIT COMPLETE. CONNECT TO THIRD PORT OF 3-WAY VALVE WITH A BRONZE MALE THREADED ADAPTOR AND 2-HANDLE BRONZE LOCKING CAP.
- 3 ALL PUMP STATION INTERIORS SHALL HAVE INTERNAL PROTECTION (SEE COUNTY APPROVED PRODUCT LIST, APPENDIX S) IN ACCORDANCE WITH TECHNICAL SPECIFICATIONS SECTION 09923.
- 1 IN CASES WHERE A PUMP STATION REQUIRES AN ODOR CONTROL UNIT AND IS ON THE OPPOSITE SIDE OF THE STREET FROM A WATER MAIN, A 4" PVC CONDUIT SHALL BE INSTALLED FROM THE NEAREST LOT NUMBER ON THE SIDE OF STREET TO A POINT 3 FEET BEYOND BACK OF SIDEWALK ON SAME SIDE OF STREET AS PUMP STATION.
- 1 CHAIN LINK FENCE SHALL BE NEW, HOT DIP GALVANIZED AFTER FABRICATION WITH MINIMUM 1.22 QUINCE PER SQUARE FOOT OF ZINC COATING. FENCE FABRIC SHALL BE WOVEN #9 GAUGE WIRE WITH 2 INCH DIAMOND MESH AND KINKSHELD SECTIONS. FENCE SHALL HAVE TOP RAIL AND BOTTOM TENSION WIRE WITH THE CLIPS AT MAX 24 INCH SPACING. FENCE SHALL HAVE WEATHER-TIGHT CAPS ON EACH POST. GATE FRAMES SHALL BE CONSTRUCTED OF TUBULAR MEMBERS WELDED AT ALL CORNERS. GATE POSTS SHALL BE EMBEDDED IN CONCRETE (30" MINIMUM EMBEDMENT).
- 1 ALL PPE TRANSFORMERS SHALL BE INSTALLED OUTSIDE OF PUMP STATION FENCE LINE.

ODOR CONTROL UNITS - U.S. FILTER ZABOCS

UNIT	CFM	INTAKE LINE	PAO SIZE
ZB-8000	1500	12"	10x13"
ZB-7000	1150	12"	9x12"
ZB-6000	1050	10"	8x11"
ZB-5000	500	8"	7x9.5"
ZB-4000	350	6"	6x8.5"
ZB-42	140	4"	5x8"
ZB-30	70	4"	4x8"



<p>REVISIONS</p>		<p>ROSE MARINA REDEVELOPMENT PLANS</p>		<p>CITY OF MARCO ISLAND COLLIER COUNTY, FLORIDA</p>		<p>PERMIT PLANS</p>		<p>PUMP STATION DETAIL SHEET</p>	
<p>C. D. HAGAN, P.E. FL REG. #38649 EB #29474</p>		<p>DATE: 09-20-14</p>		<p>PROJECT NO.: 2014-077</p>		<p>SCALE: As Shown</p>		<p>SHEET: C-15</p>	



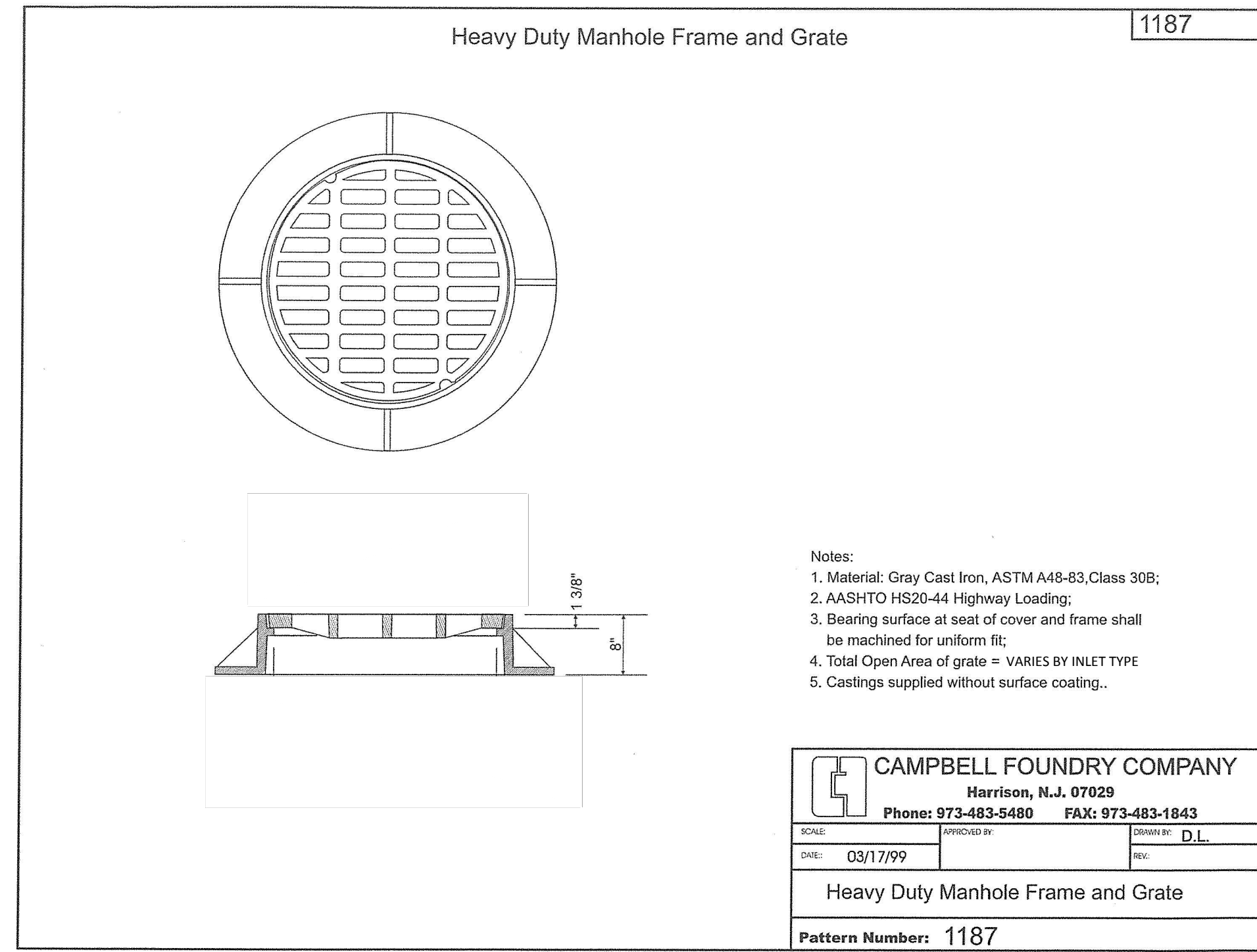
- NOTES:
1. Material - Gray Cast Iron ASTM A48-83, Class 30B;
 2. Bearing surface at seat of frame and cover shall be machined for uniformity;
 3. Cover shall have STD penetrating pickholes;
 4. Castings supplied without surface coating.

CAMPBELL FOUNDRY COMPANY
 Harrison, N.J. 07029
 Phone: 973-483-5480 FAX: 973-483-1843

SCALE: APPROVED BY: DATE: 03/24/99 DRAWN BY: D.L.
 Heavy Duty Manhole Frame & Cover
 Pattern Number: 1009

HEAVY DUTY MANHOLE FRAME & COVER
 N.T.S.

NOTE:
 CONTRACTOR TO INSTALL HEAVY DUTY MANHOLE COVER OR INLET TOP AS SHOWN ON SHEET C-6. USE ABOVE DETAIL(S) OR APPROVED EQUAL.

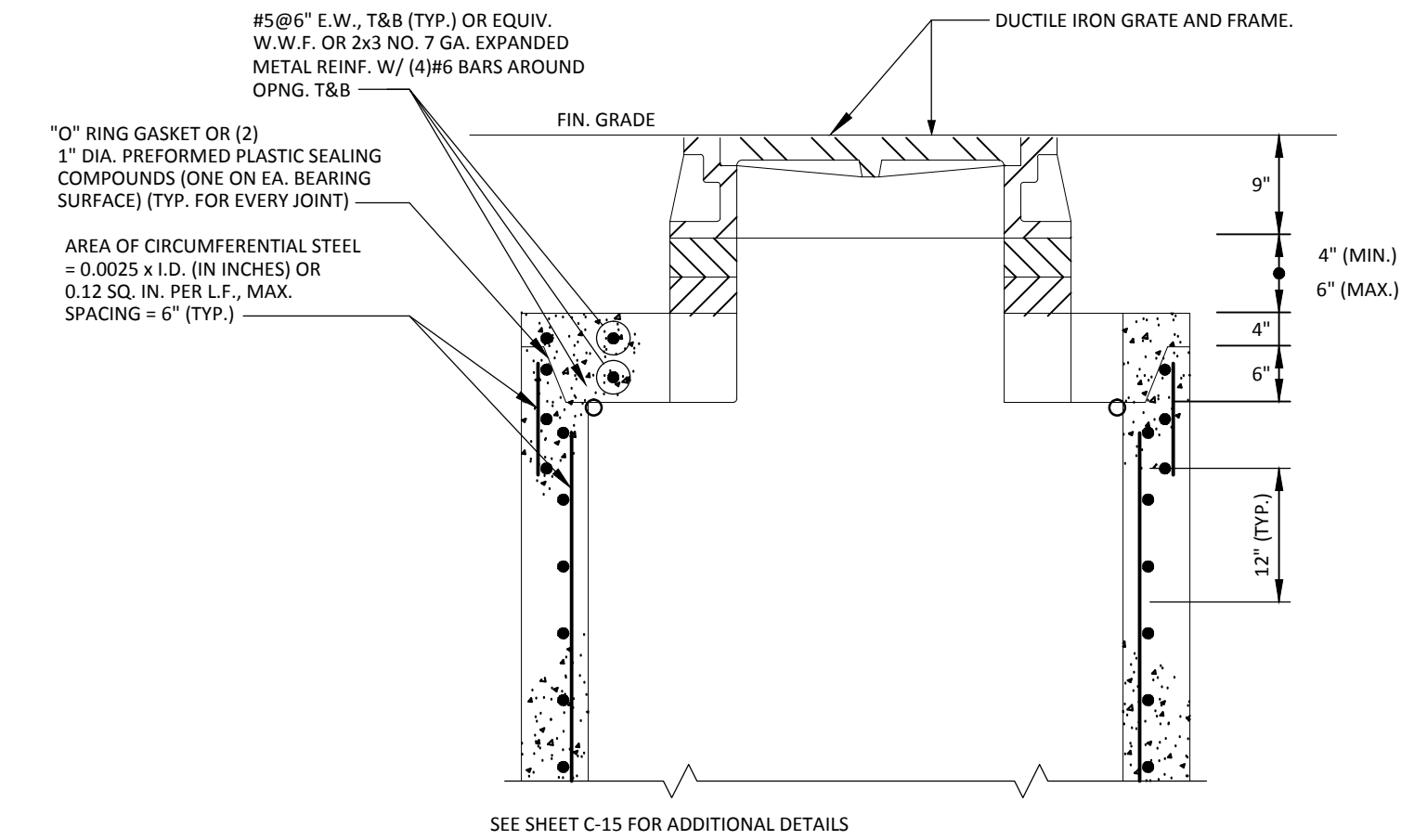


- Notes:
1. Material: Gray Cast Iron, ASTM A48-83, Class 30B;
 2. AASHTO HS20-44 Highway Loading;
 3. Bearing surface at seat of cover and frame shall be machined for uniform fit;
 4. Total Open Area of grate = VARIES BY INLET TYPE
 5. Castings supplied without surface coating.

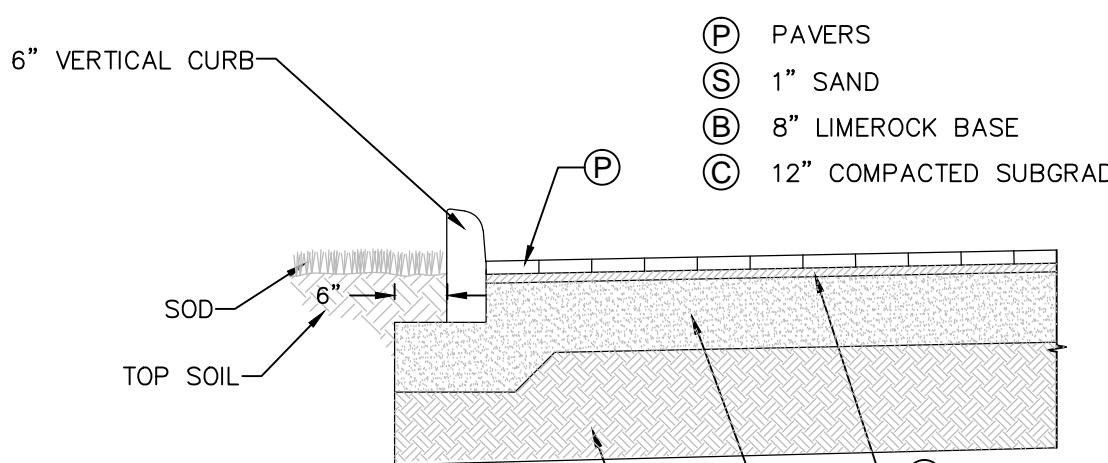
CAMPBELL FOUNDRY COMPANY
 Harrison, N.J. 07029
 Phone: 973-483-5480 FAX: 973-483-1843

SCALE: APPROVED BY: DATE: 03/17/99 DRAWN BY: D.L.
 Heavy Duty Manhole Frame and Grate
 Pattern Number: 1187

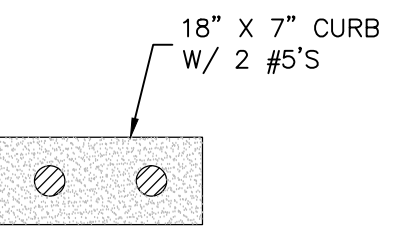
HEAVY DUTY MANHOLE FRAME & GRATE
 N.T.S.



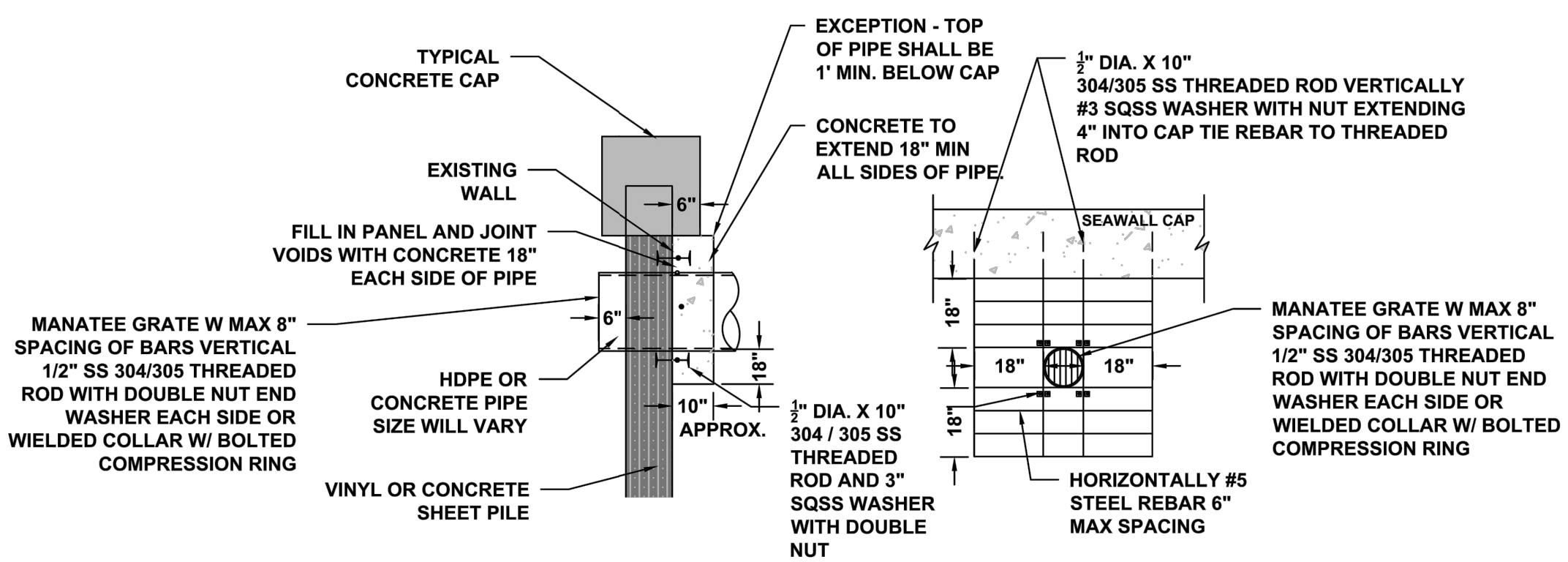
STEEL FRAME & GRATE
 N.T.S.



- NOTES:
1. PAVERS USED FOR PAVEMENT MARKING SHALL BE PRE-APPROVED BY TRAFFIC DIVISION PRIOR TO INSTALLATION.
 2. WHEN HEADER CURB IS USED TO OUTLINE A CROSSWALK THE CURB SHALL BE OF WHITE CONCRETE WITH GLASS BEADS IN WHITE CONCRETE.
 3. GLASS SPHERES TO MEET REQUIREMENTS OF SECTIONS 971-1 AND 971-14 WITH THE RETROFLECTIVITY TO BE NOT LESS THAN 300 MINICANDLES.
 4. CONTRACTOR TO OBTAIN APPROVAL FROM ENGINEER PRIOR TO INSTALLATION

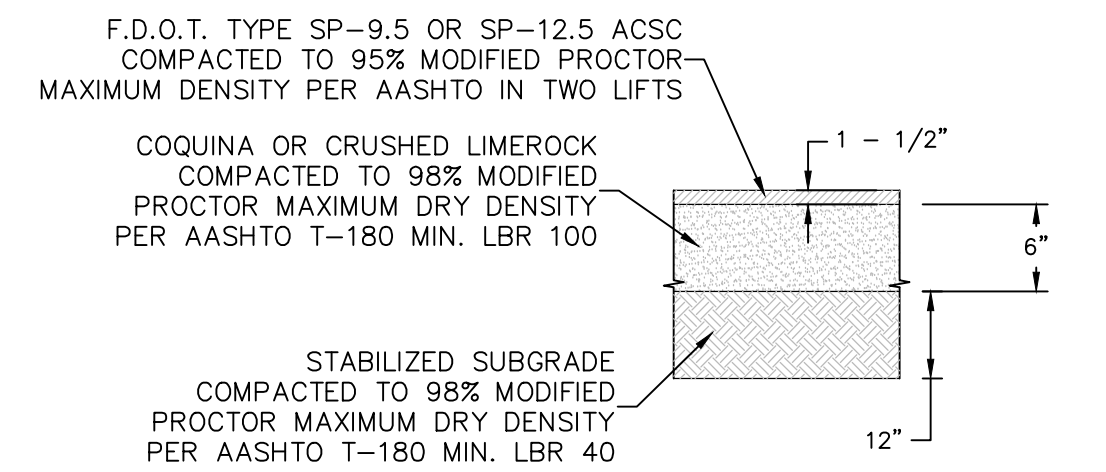


INTERLOCKING PAVER BLOCKS DETAIL
 N.T.S.

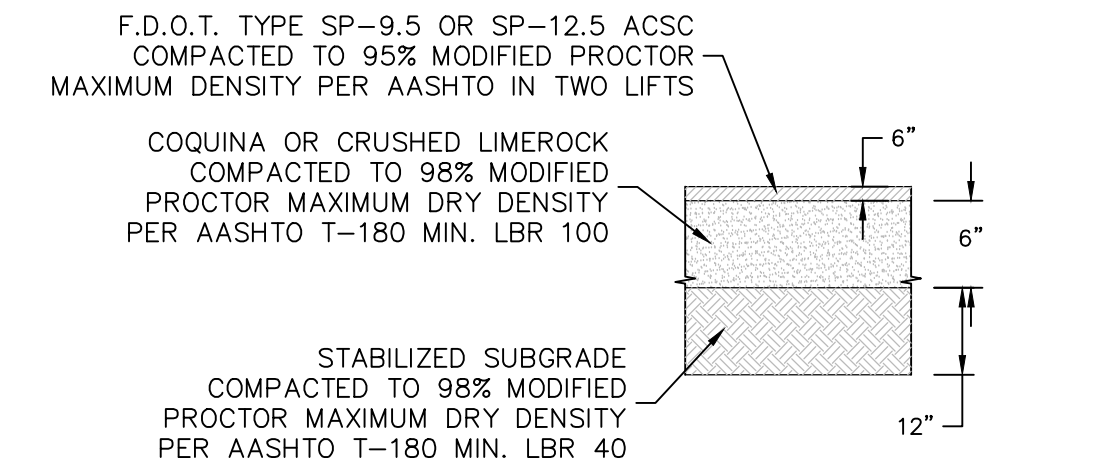


TYPICAL STORM DRAIN COLLAR PIPE THRU WALL

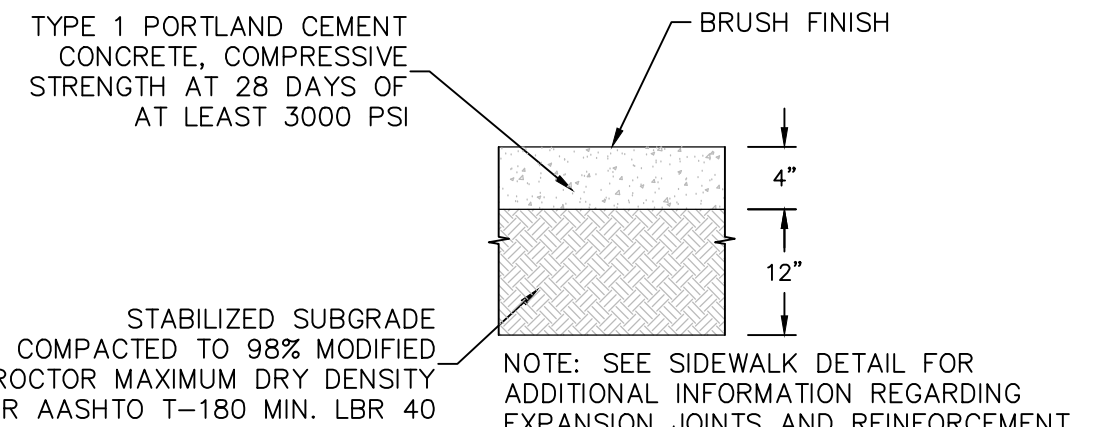
CONCRETE COLLAR SHALL BE 4000 PSI FORM SHALL BE DE-WATERED OR TREME PLACE CONCRETE
 THREADED ROD IN CONCRETE SHALL BE INSTALLED WITH HILTI 150 ADHESIVE EPOXY OR EQUAL PER MANUFACTURE SPECIFICATION



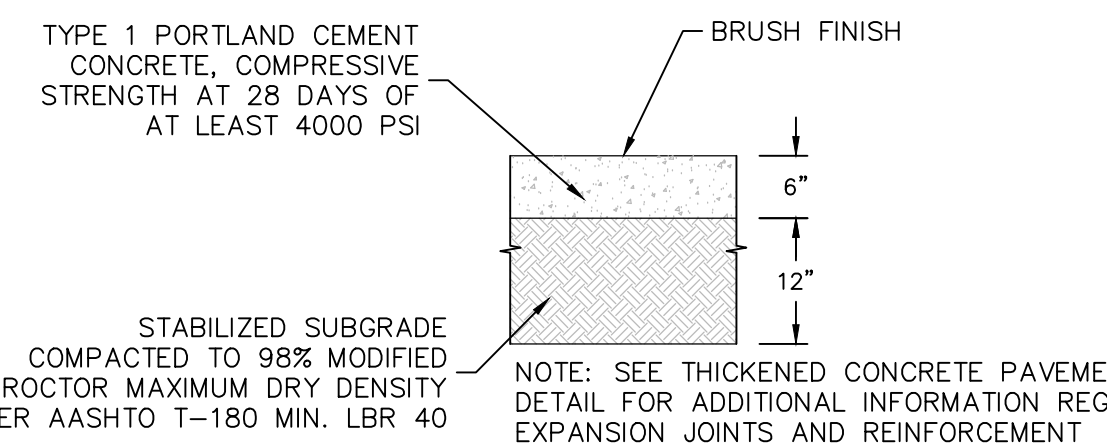
STANDARD DUTY ASPHALT
 N.T.S.



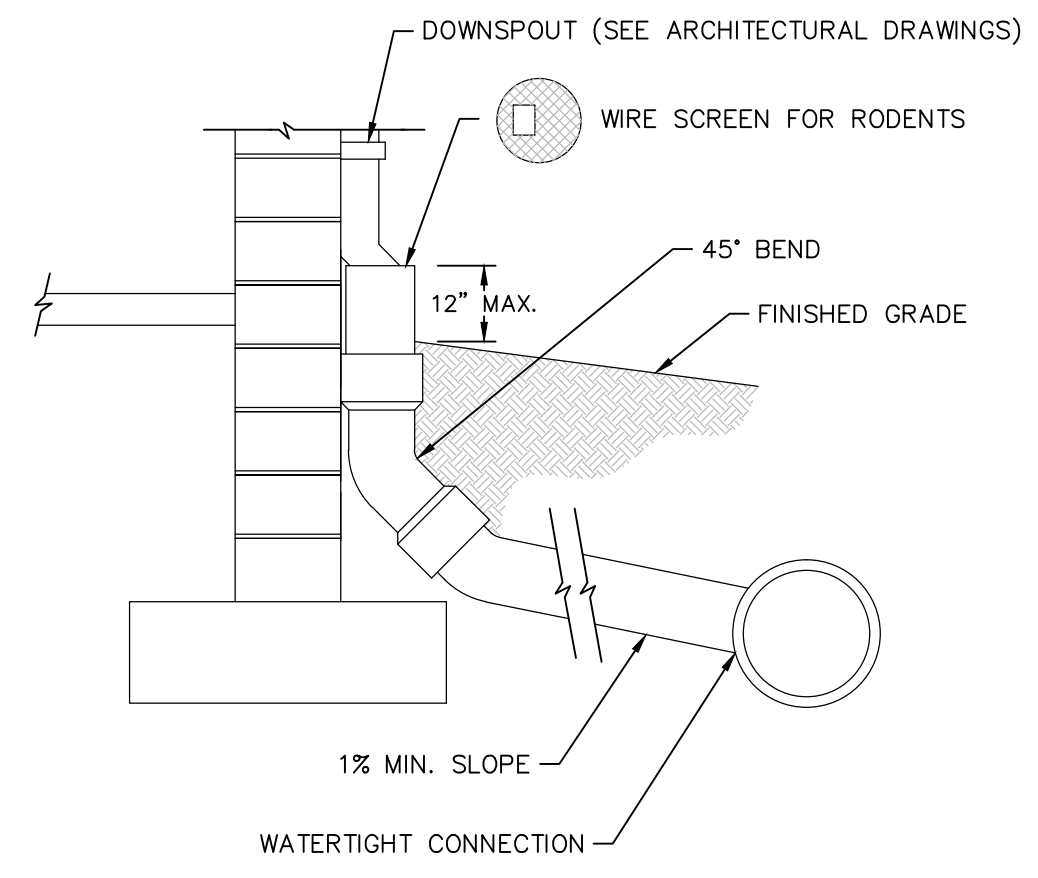
HEAVY DUTY ASPHALT
 N.T.S.



STANDARD DUTY CONCRETE
 N.T.S.



HEAVY DUTY CONCRETE
 N.T.S.



- NOTES:
1. PIPE MUST BE SCHEDULE 40 PVC.
 2. THE DOWNSPOUT COLLECTOR DRAIN SHALL BE INSTALLED BEFORE THE DOWNSPOUTS ARE INSTALLED ON THE BUILDING. STEWWORK CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK TO AND INCLUDING THE RODENT SCREEN. BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONNECTION AT THE POINT OF THE RODENT SCREEN.

DOWNSPOUT COLLECTOR DETAIL
 N.T.S.

REVISIONS	

ROSE MARINA
 REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
 COLLIER COUNTY, FLORIDA

HAGAN
 ENGINEERING

1250 TAMiami TRAIL N., STE. 203B
 Naples, Florida 34102
 Phone (239) 851-8239

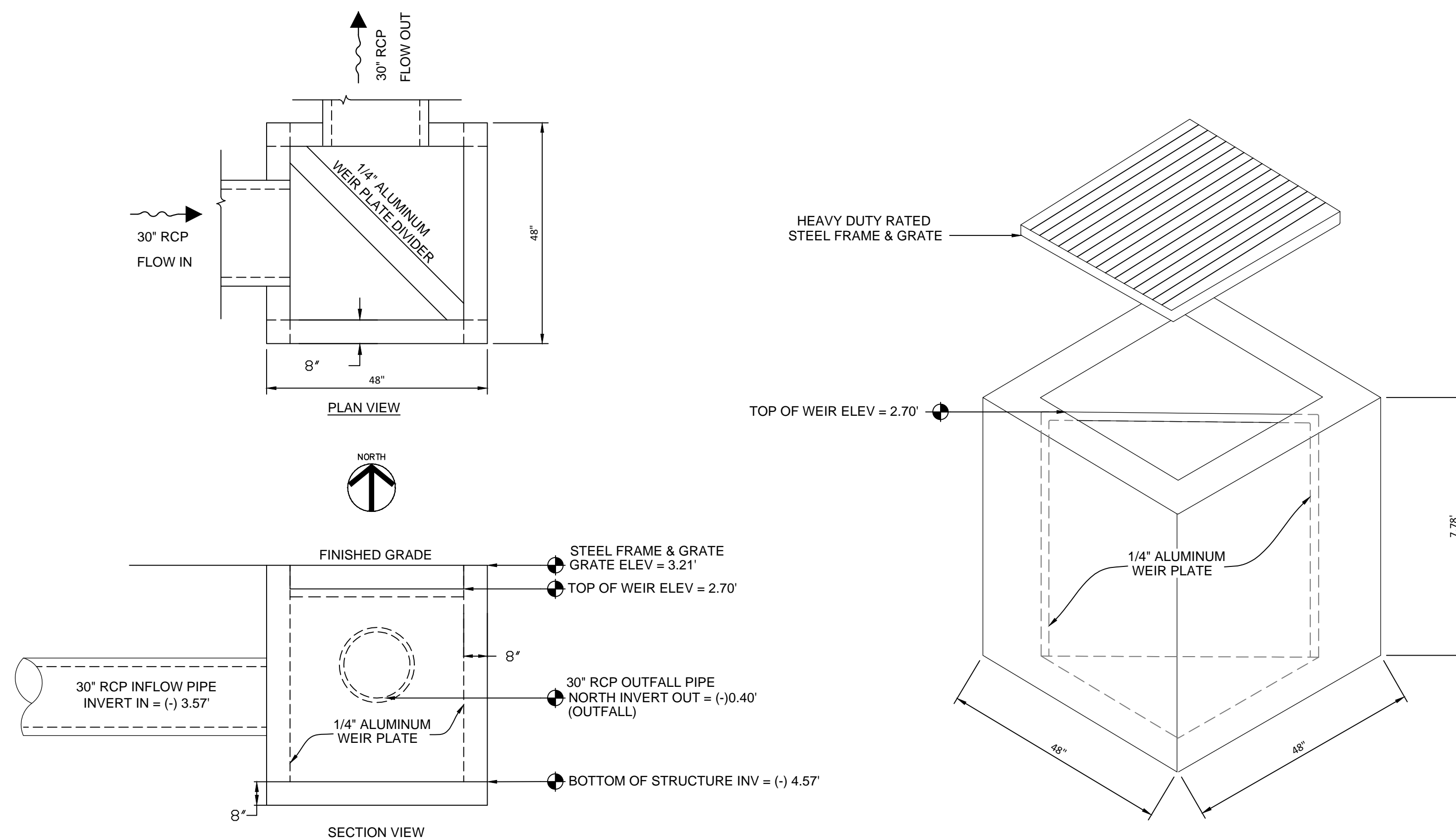
NOTE:
 CONTRACTOR TO REFER TO THE GEOTECHNICAL REPORT FOR SITE WORK SPECIFICATIONS.

PERMIT PLANS

C. D. HAGAN, P.E.
 FL REG. #38649
 EB #29474
 DATE:

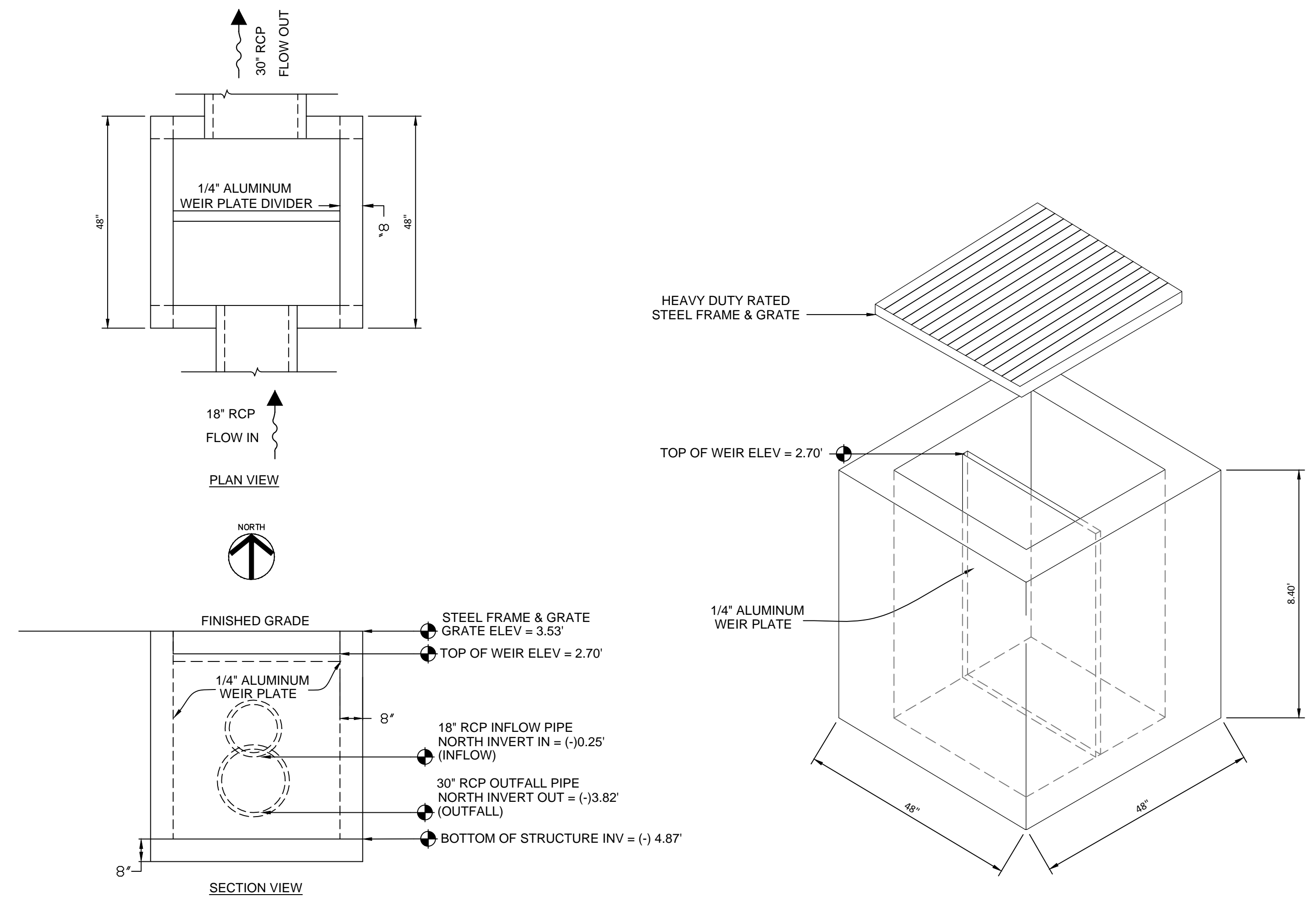
DRAINAGE DETAILS

DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	C-16



DIVERTER WEIR
48" X 48" MODIFIED INLET W \ STEEL FRAME & GRATE

OUTFALL STRUCTURE S-7 DETAIL
N.T.S.



DIVERTER WEIR
48" X 48" MODIFIED INLET W \ STEEL FRAME & GRATE

OUTFALL STRUCTURE S-12 DETAIL
N.T.S.

REVISIONS	

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

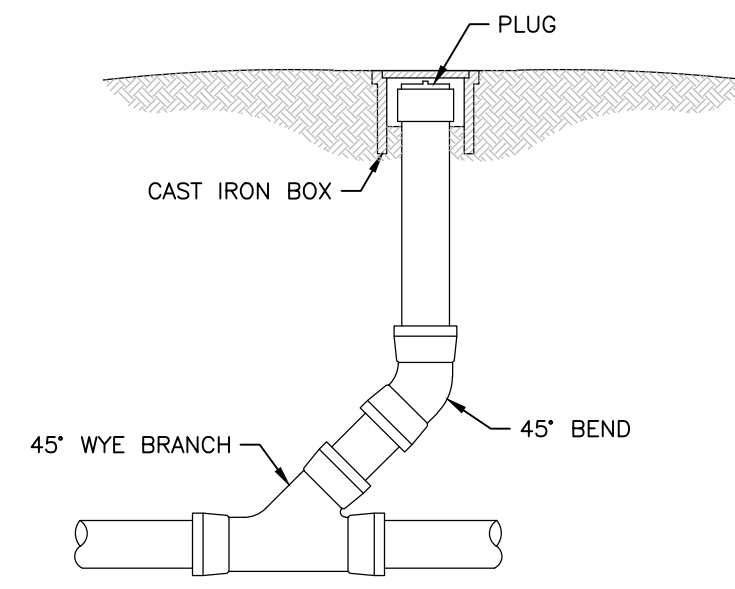
HAGAN
ENGINEERING

1250 TAMiami TRAIL N., STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

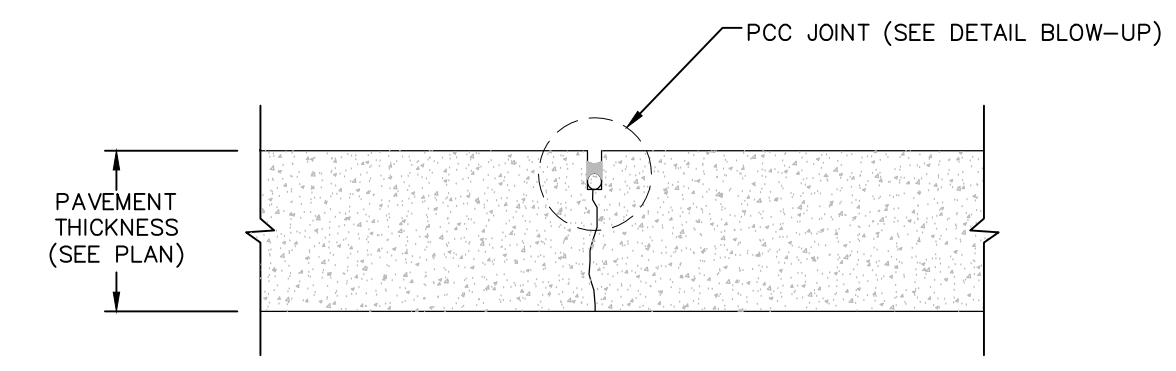
PERMIT PLANS

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:

DRAINAGE DETAILS			
DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	C-17

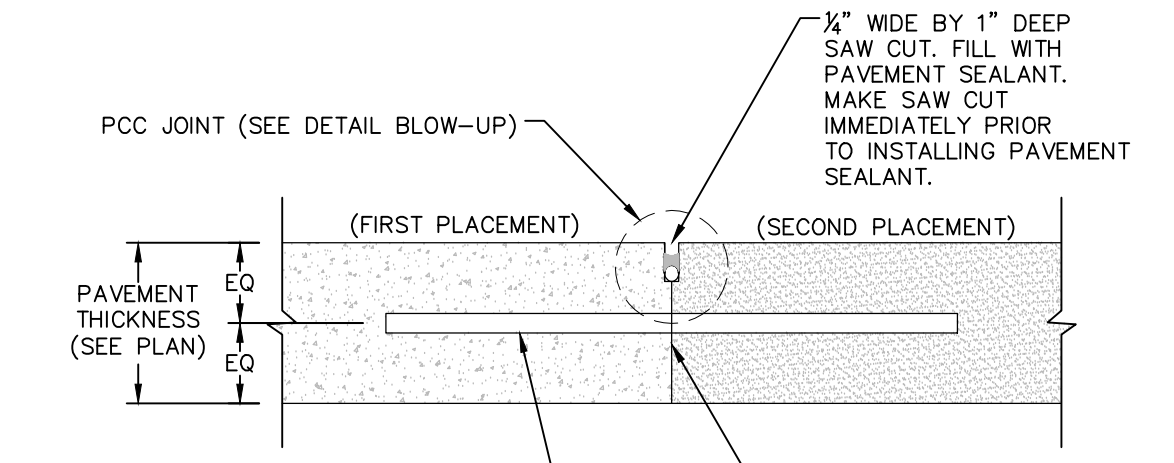


CLEANOUT
N.T.S.



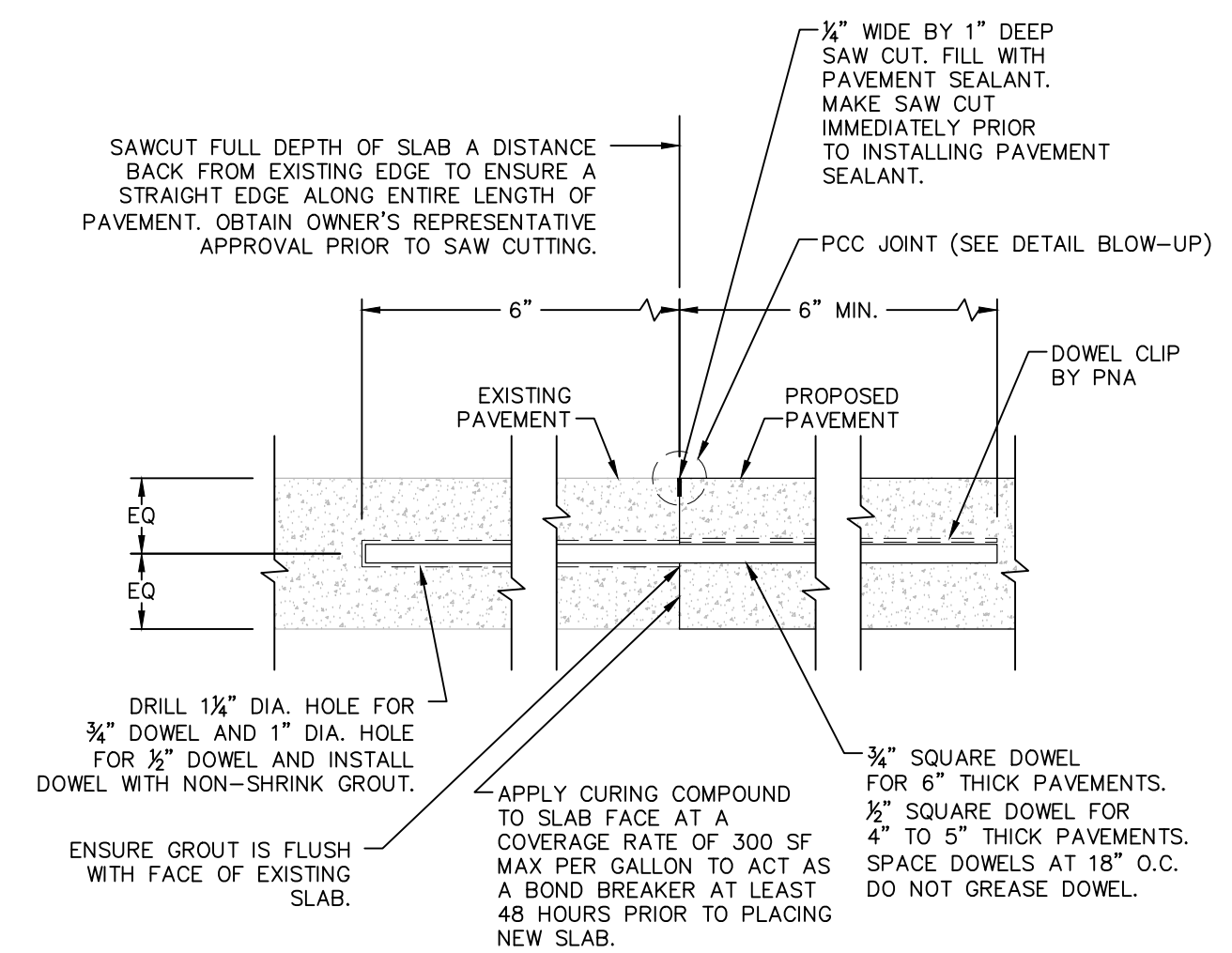
NOTE: SEE PLAN FOR JOINT SPACING.

CONTRACTION JOINT

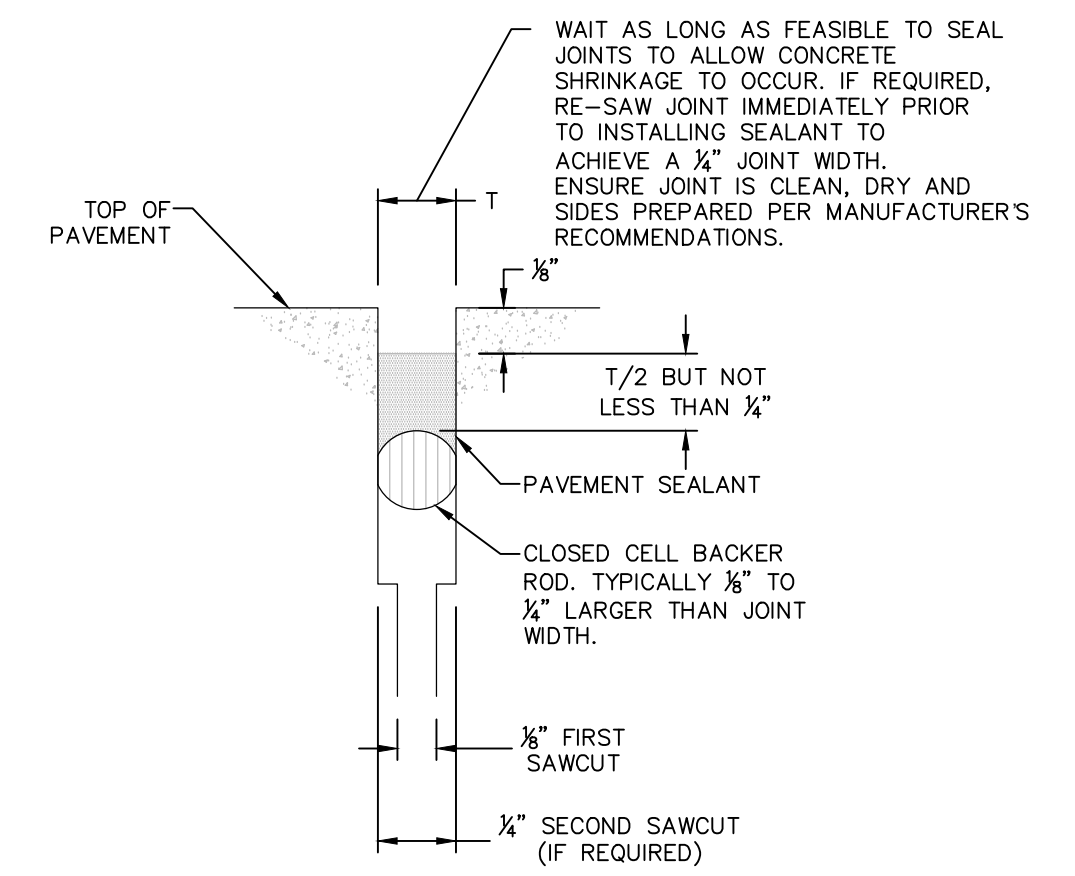


3/4" DIAMETER DOWEL FOR 6" THICK PAVEMENTS AND 1/2" DIAMETER DOWEL FOR 4" OR 5" THICK PAVEMENTS. DOWELS TO BE 10" LONG CENTERED WITH JOINT SPACED AT 18" ON CENTER. DOWEL TO BE INSTALLED IN FORM WITH AN APPROVED ALIGNMENT DEVICE. LIGHTLY OIL FULL LENGTH OF DOWEL.

CONSTRUCTION JOINT



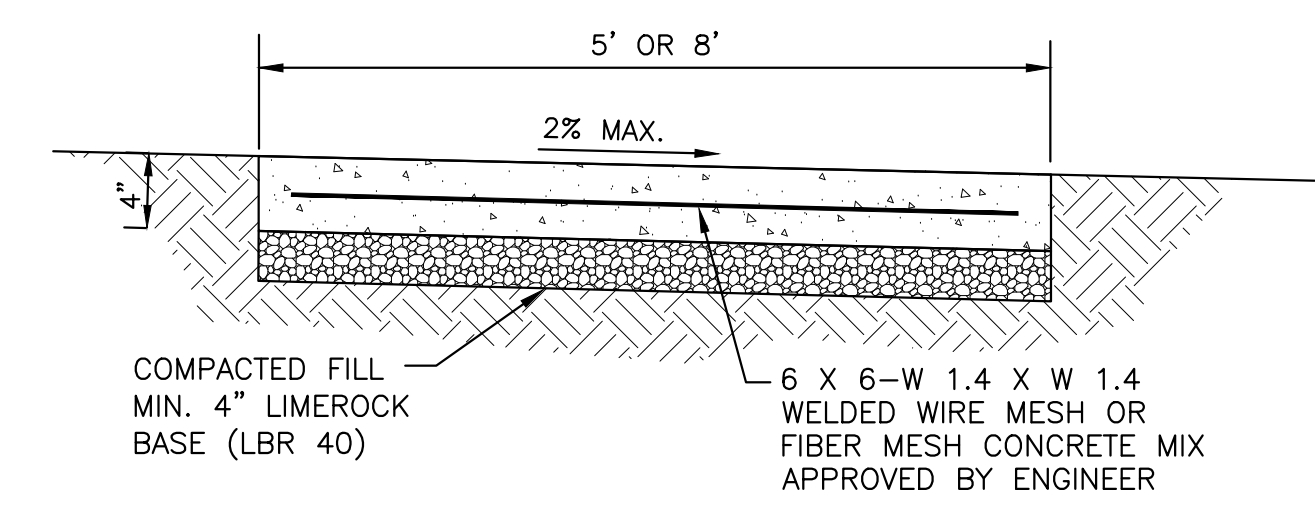
CONSTRUCTION JOINT TO EXISTING PAVEMENT



PCC JOINT DETAIL BLOW-UP (TYP.)

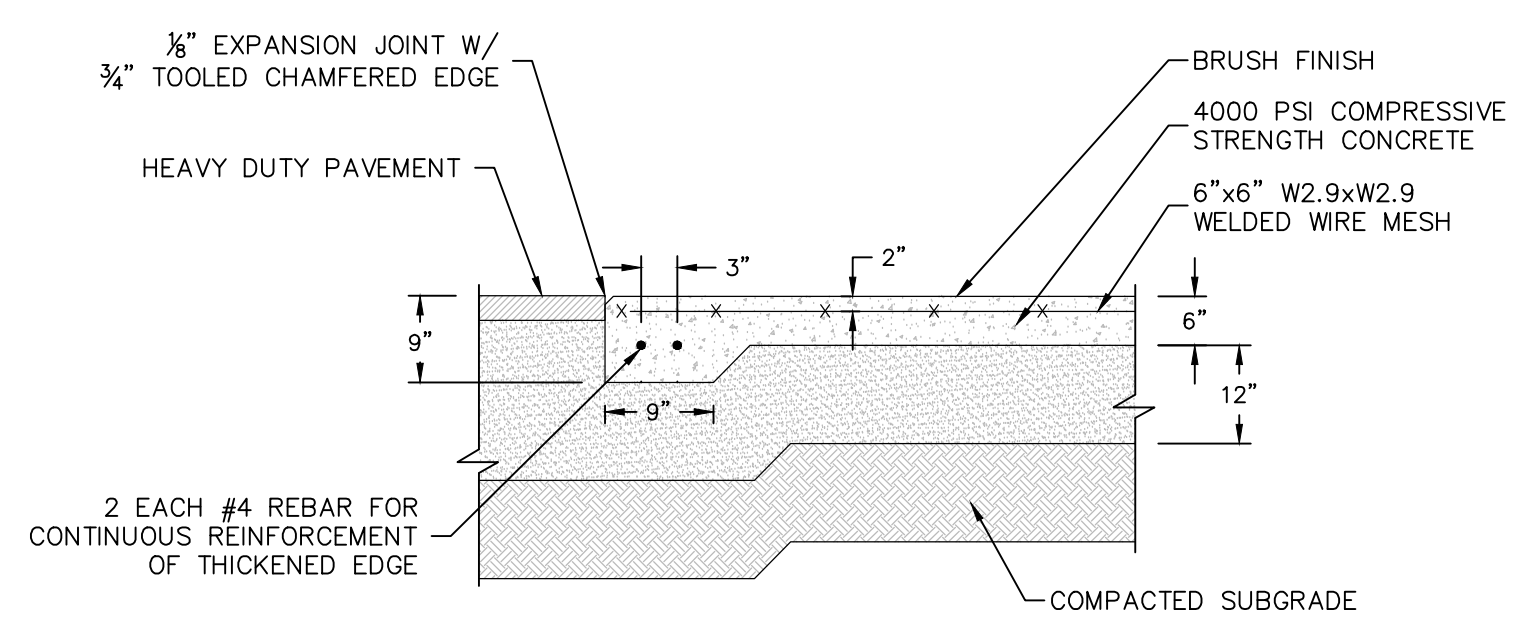
CONCRETE JOINT DETAILS
N.T.S.

- NOTES:
1. ENSURE JOINTS ARE CLEAN AND DRY PRIOR TO THE APPLICATION OF THE JOINT SEALANT.
 2. INSTALL CLOSED CELL BACKER ROD AFTER JOINTS HAVE BEEN CLEANED AND DRIED IN ACCORDANCE WITH SEALANT MANUFACTURER'S REQUIREMENTS.
 3. INSTALL BACKER ROD AT CONSISTENT AND UNIFORM DEPTH.
 4. JOINT SEALANT APPLICATION SHALL BE IN STRICT COMPLIANCE WITH SEALANT MANUFACTURER'S REQUIREMENTS.

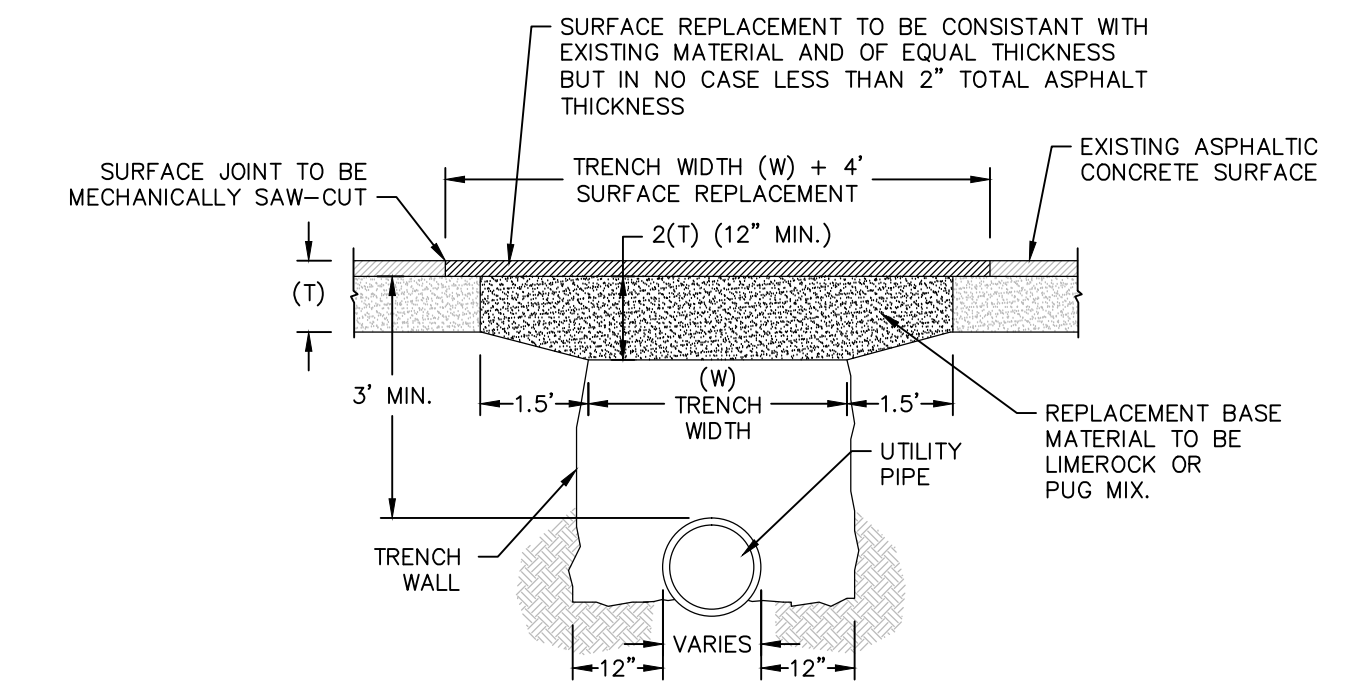


TYPICAL CONCRETE SIDEWALK DETAIL
NOT TO SCALE

NOTE: CONCRETE IN SIDEWALK TO BE 3,000 P.S.I. SIDEWALK CONTRACTION JOINTS TO BE AT 5' INTERVALS.



THICKENED CONCRETE PAVEMENT EDGE
N.T.S.



ROADWAY OPEN CUT
N.T.S.

- NOTES:
1. BACKFILL SHALL BE PLACED IN 6" LAYERS FROM BENEATH THE HAUNCHES OF THE PIPE TO THE BASE AND COMPACTED TO 98% DENSITY PER AASHTO T-180 MODIFIED PROCTOR.
 2. BASE MATERIALS TO BE PLACED IN TWO OR THREE LAYERS ROLLED AND TAMPED TO ABOVE SPECIFIED DENSITY.

REVISIONS	

**ROSE MARINA
REDEVELOPMENT PLANS**

**CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA**

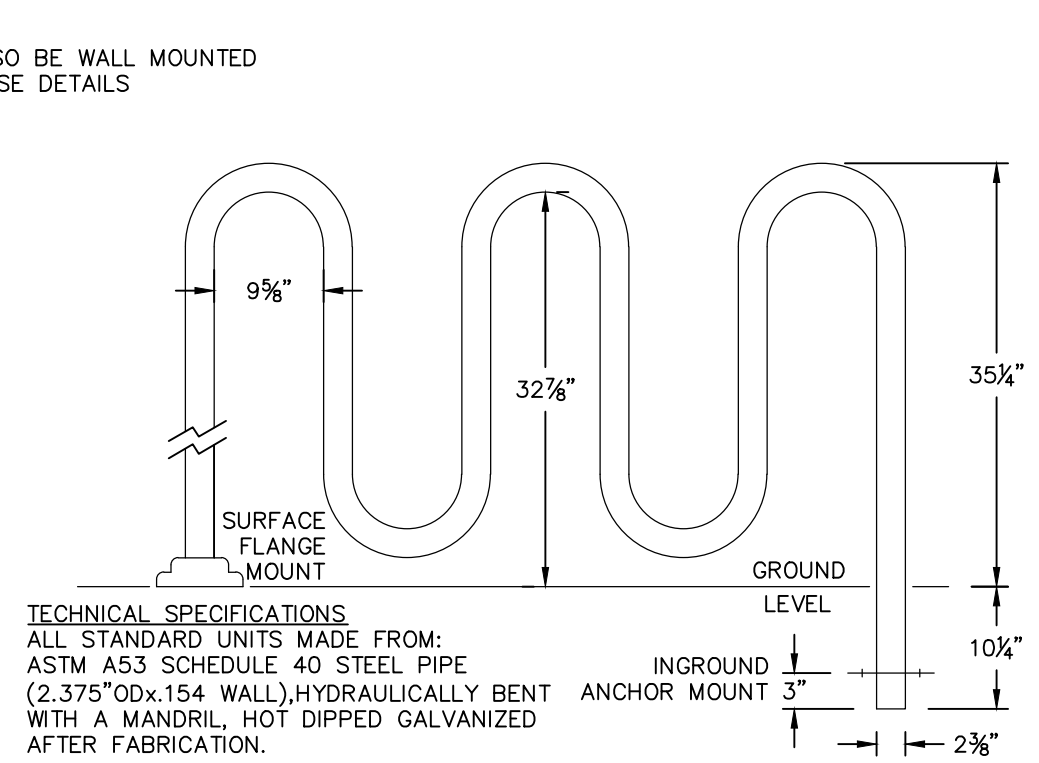
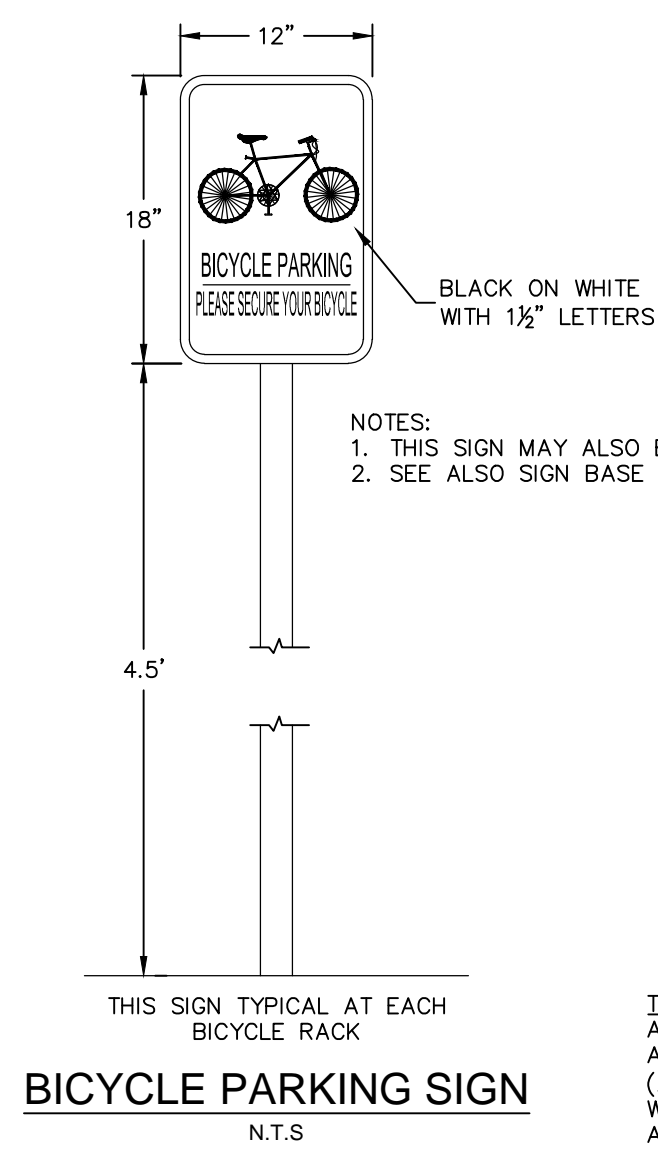
HAGAN
ENGINEERING

1250 TAMiami TRAIL N., STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

PERMIT PLANS

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:

SITE DETAILS			
DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	C-18



INSTALLATION METHODS:
INGROUND ANCHOR MOUNT (STANDARD)
FREESTANDING MOUNT (OPTIONAL AND EXTRA)
SURFACE FLANGE MOUNT (OPTIONAL AND EXTRA)

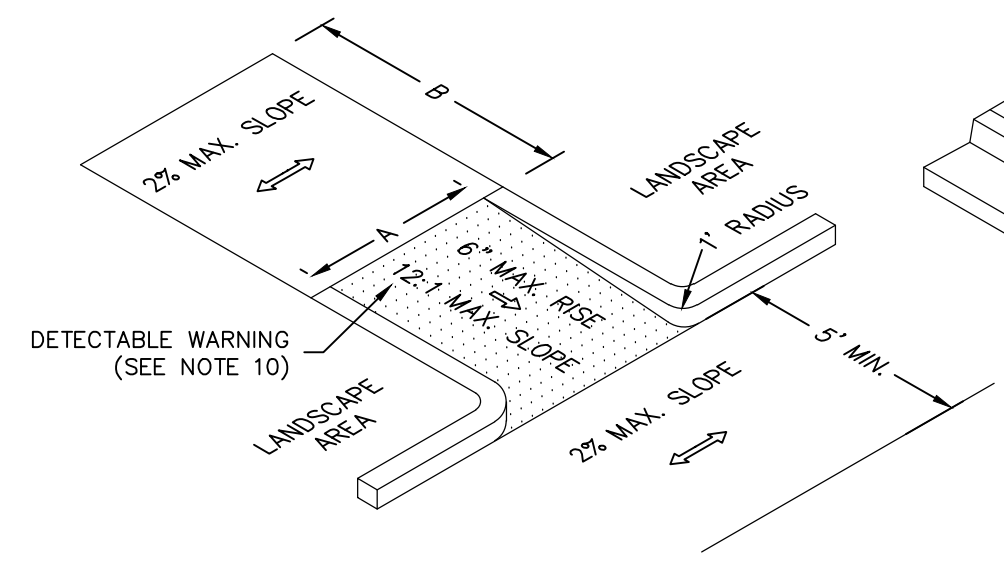
MODEL NUMBER	# OF BICYCLES	RACK LENGTH
RB 05	5	38.375"
RB 07	7	62.375"
RB 09	9	86.375"
RB 11	11	110.375"

RACK SHALL BE
AAA RIBBON RACK Co.
DIVISION OF:
BRANDIR INTERNATIONAL, INC.
521 FIFTH AVENUE, 17TH FLOOR
NEW YORK, NY 10175 USA
212-505-6500 FAX 212-505-6813

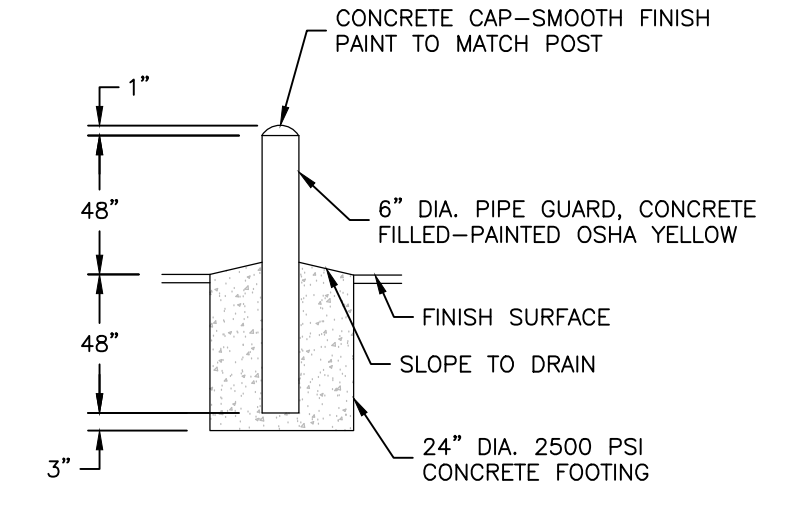
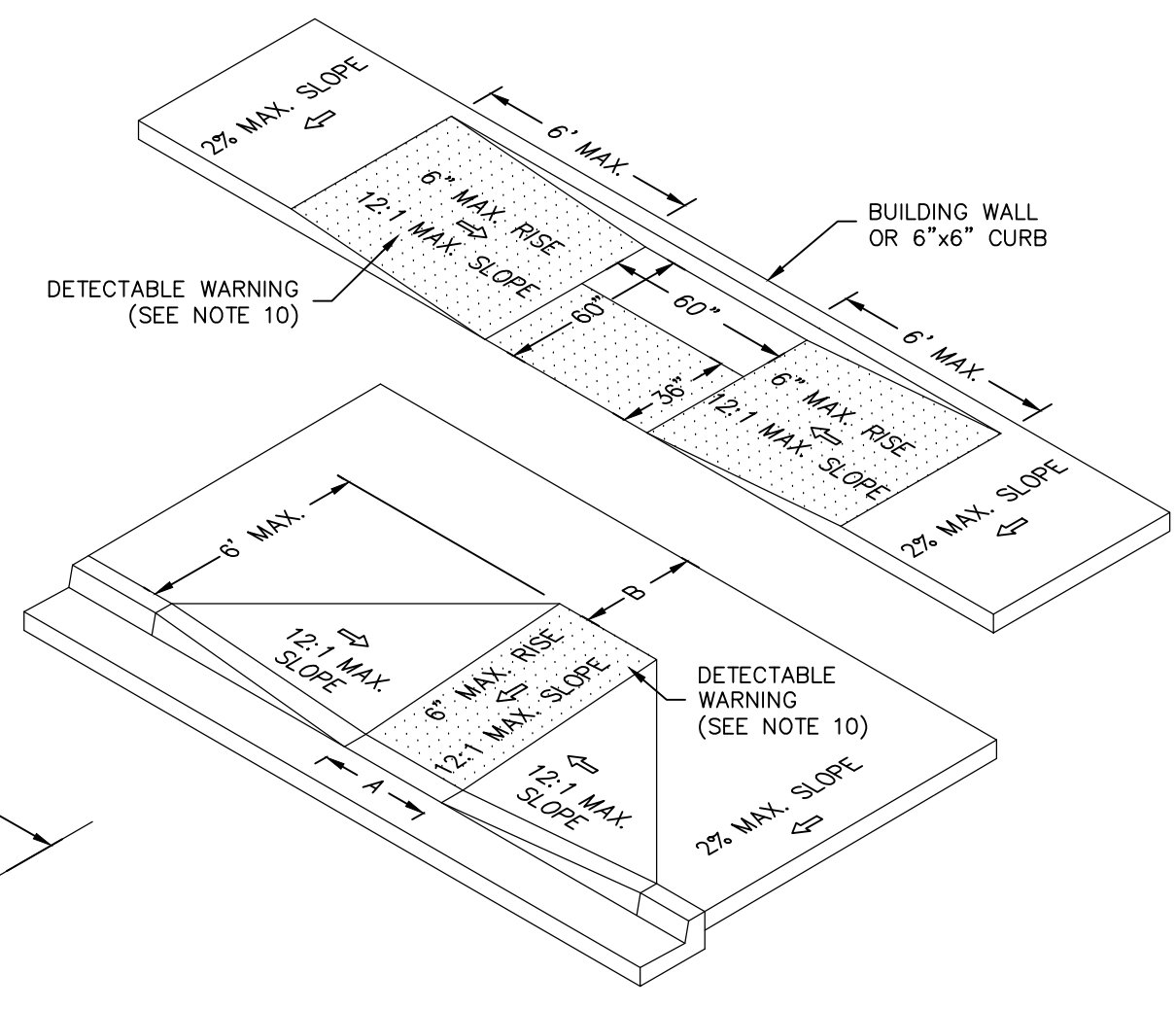
BICYCLE RACK
N.T.S.

- NOTES:
- ALL ACCESSIBLE COMPONENTS CONSTRUCTED AS PART OF THESE PLANS SHALL COMPLY WITH CHAPTER 11 OF THE FLORIDA BUILDING CODE.
 - ACCESSIBLE ROUTE TO ACCESSIBLE SPACES, BUILDING ENTRANCES, AND PUBLIC STREETS SHALL NOT EXCEED 5% RUNNING SLOPE AND 2% CROSS SLOPE.
 - CHANGE IN ELEVATION WITHIN THE ACCESSIBLE ROUTE IS NOT TO EXCEED 1/2" WITHOUT A CURB RAMP.
 - UNLESS OTHERWISE SHOWN ON THE PLANS, THE MINIMUM CLEAR ROUTE SHALL BE 36" WIDE WITH A 60"x60" PASSING SPACE EVERY 200 FEET.
 - ACCESSIBLE ROUTES THROUGH PLANTERS SHALL BE LEVEL WITH THE SURROUNDING PAVEMENT OR PROVIDE CURB RAMP AT EACH END WITH A MINIMUM 48" LEVEL LANDING IN BETWEEN.
 - THE ACCESSIBLE ROUTE IN FRONT OF PULL-IN PARKING SHALL BE A MINIMUM OF 44" WIDE AND NOT REDUCED BY VEHICLE OVERHANGS, CURBING, SIGN POSTS, OR OTHER OBSTRUCTIONS.
 - ANY WALK THAT CROSSES OR ADJOINS A VEHICULAR WAY NOT SEPARATED BY CURBS, RAILINGS, OR OTHER ELEMENTS SHALL BE DEFINED BY A CONTINUOUS 36" WIDE DETECTABLE WARNING.
 - SPECIAL RAMP RULES APPLY FOR ANY RISE GREATER THAN 6" INCLUDING BUT NOT LIMITED TO RESTRICTION ON SLOPE, TOTAL RISE BETWEEN LANDINGS, AND USE OF HANDRAILS, PER F.B.C 11-4.8.
 - PUBLIC SIDEWALK CURB RAMP CONSTRUCTED WITHIN A PUBLIC RIGHT-OF-WAY, IN ABSENCE OF LOCAL ROADWAY GUIDELINES, SHALL MEET THE REQUIREMENTS OF F.D.O.T INDEX 304.
 - CURB RAMP SHALL HAVE A DETECTABLE WARNING EXTENDING THE FULL WIDTH AND DEPTH OF THE RAMP.
 - DETECTABLE WARNINGS SHALL CONSIST OF EXPOSED AGGREGATE CONCRETE, CUSHIONED SURFACES MADE OF RUBBER OR PLASTIC, OR RAISED STRIPS. GROOVED SURFACES ON OUTDOOR CURB RAMP ARE NOT PERMITTED. VERIFY LOCAL REQUIREMENTS WITH THE BUILDING DEPARTMENT.

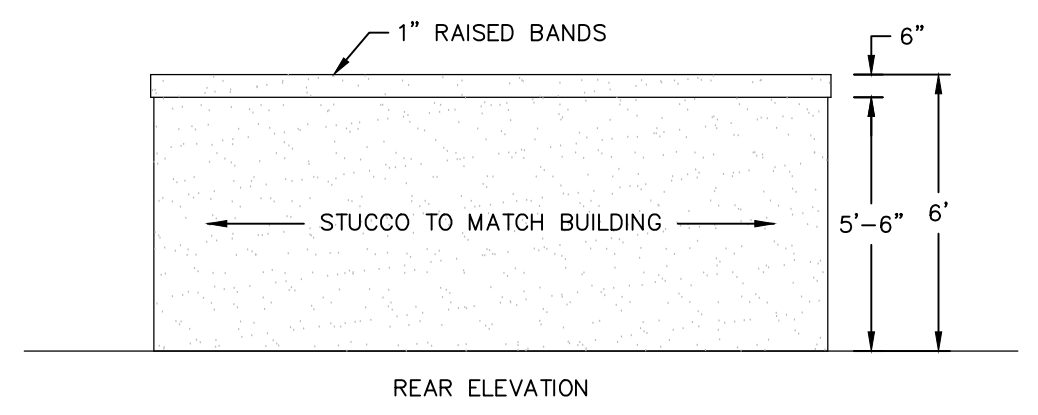
RAMP LOCATION	MINIMUM DIMENSION	
	A	B
AT OUTSWING DOOR	44"	60"
AT INSWING/SLIDING DOOR	44"	48"
NO DOORWAY	36"	36"



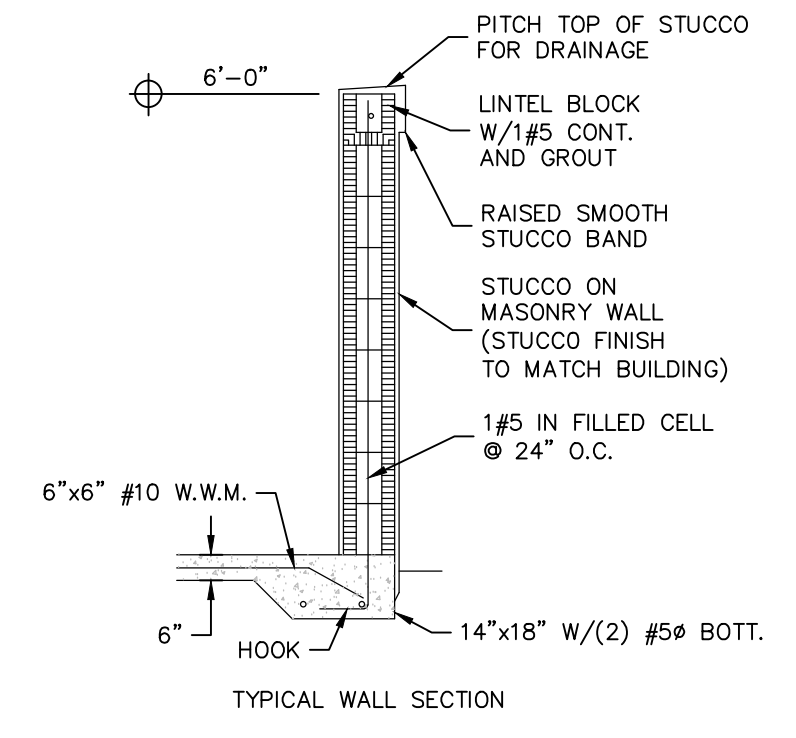
ACCESSIBLE RAMPS
N.T.S.



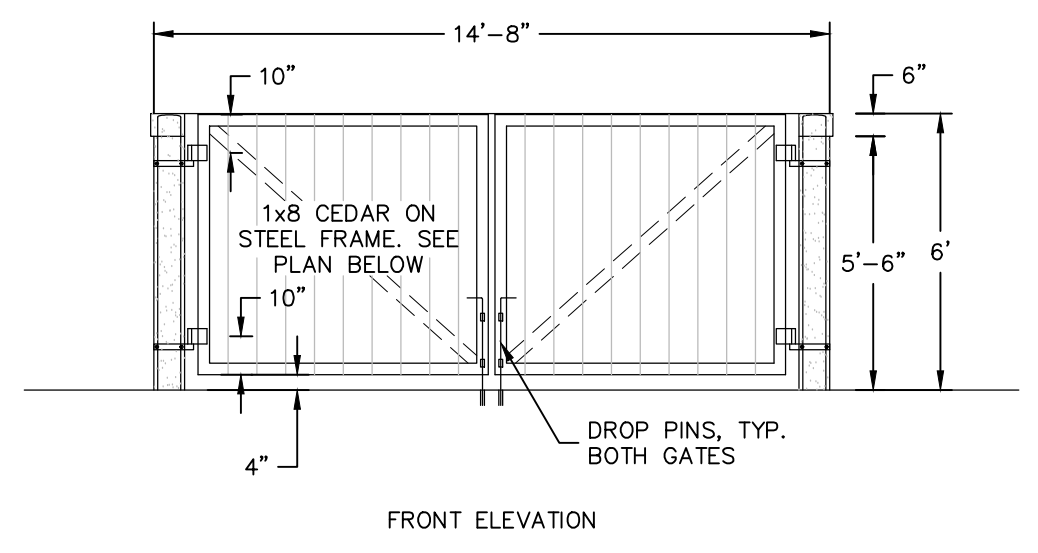
PIPE BOLLARD
N.T.S.



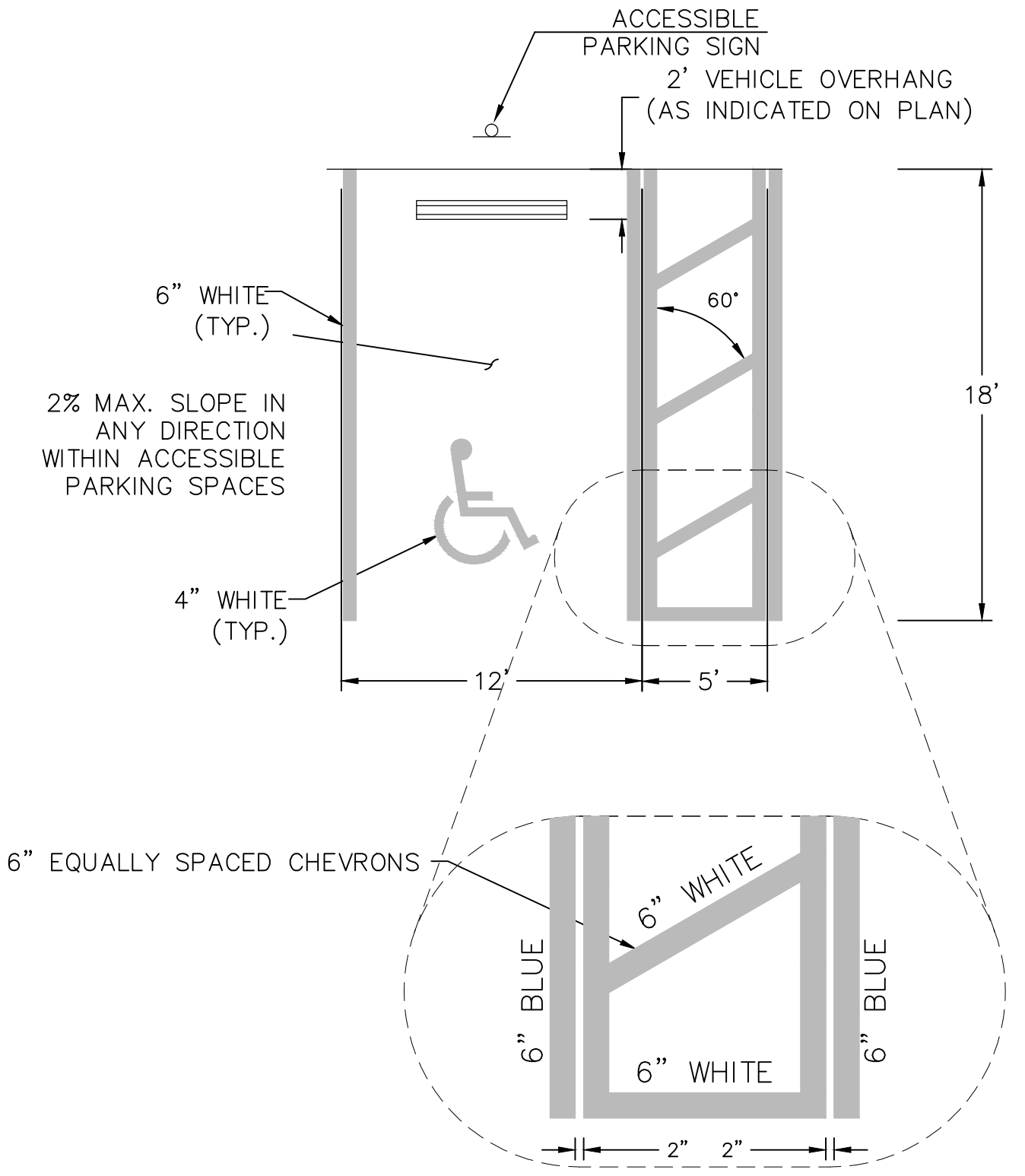
REAR ELEVATION



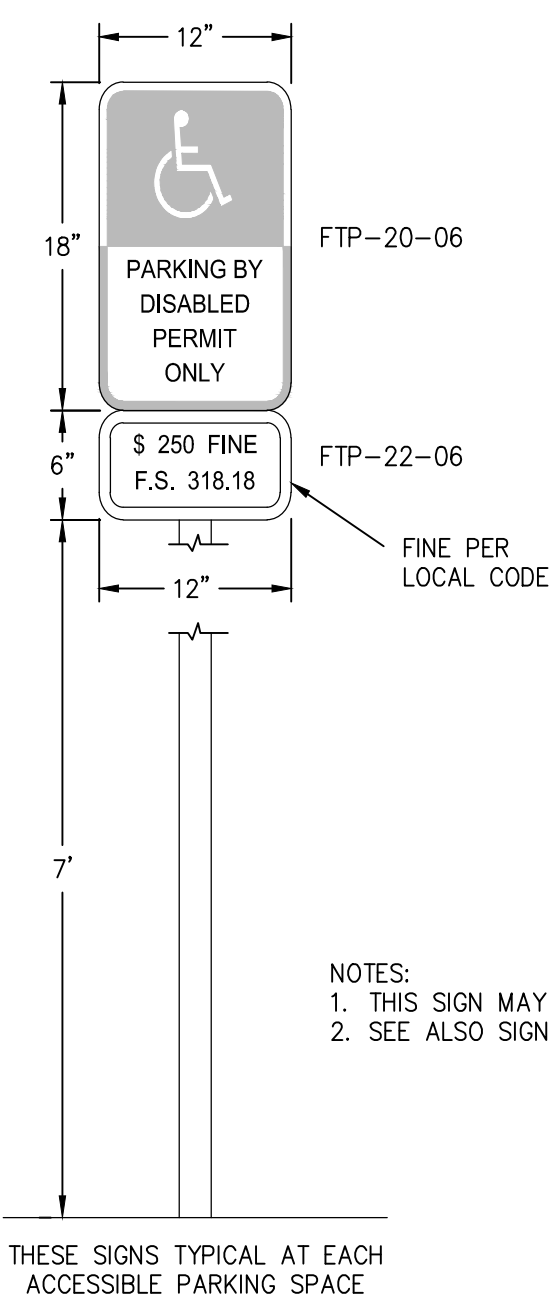
TYPICAL WALL SECTION



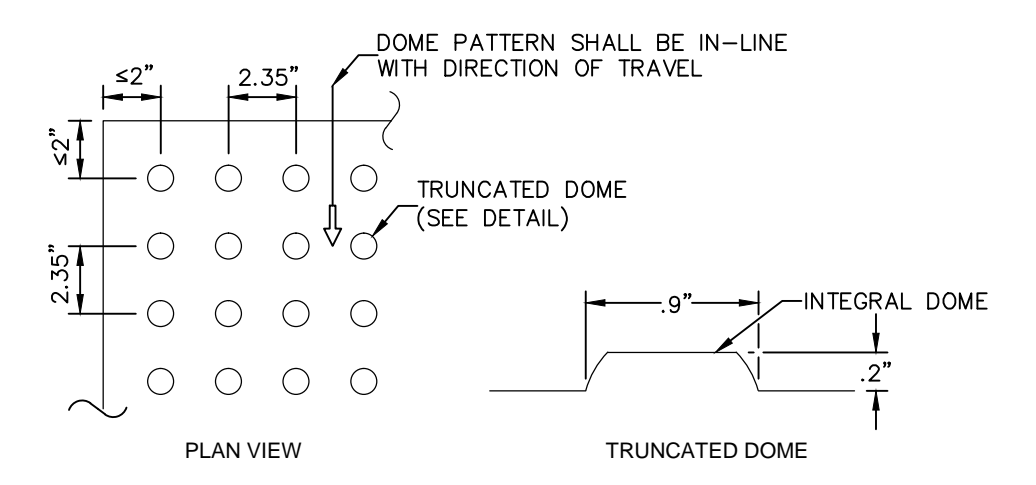
FRONT ELEVATION



ACCESSIBLE STRIPING
N.T.S.

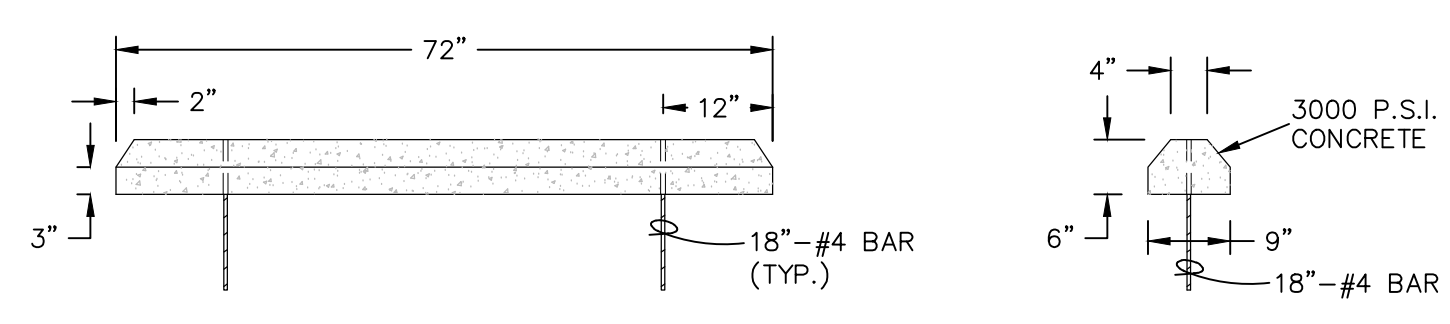


ACCESSIBLE PARKING SIGN
N.T.S.

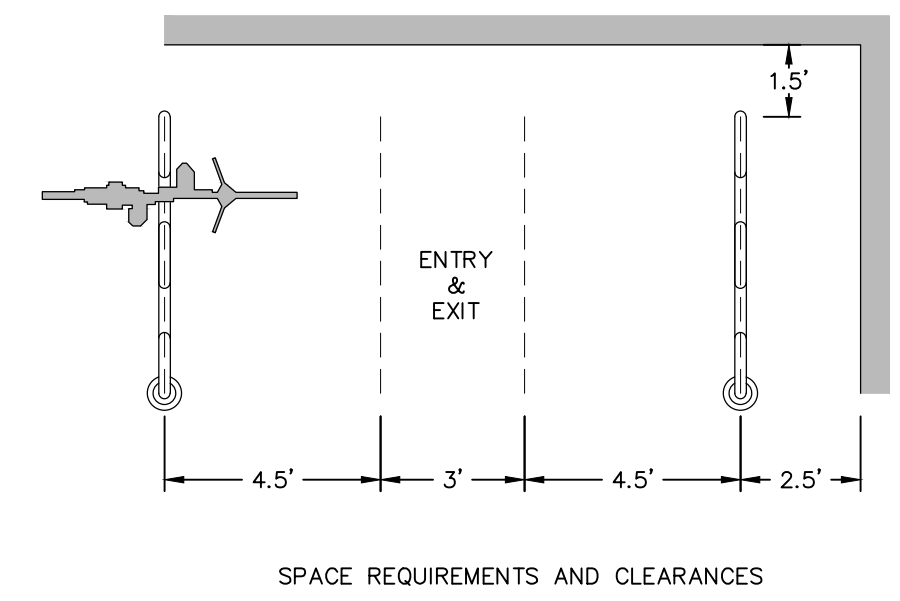


TRUNCATED DOME DETECTABLE WARNING
N.T.S.

- NOTES:
- DETECTABLE WARNINGS SHALL CONSIST OF RAISED TRUNCATED DOMES WITH A DIAMETER OF NOMINAL 0.9 IN. (23 MM), A HEIGHT OF NOMINAL 0.2 IN. (5MM) AND A CENTER-TO-CENTER SPACING OF NOMINAL 2.35 IN. (60 MM)
 - DETECTABLE WARNINGS SHALL EXTEND THE FULL WIDTH AND DEPTH OF THE CURB RAMP.
 - TRANSITION SLOPES ARE NOT TO HAVE DETECTABLE WARNINGS.
 - DETECTABLE WARNINGS SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES, EITHER LIGHT-ON-DARK, OR DARK-ON-LIGHT. THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE.



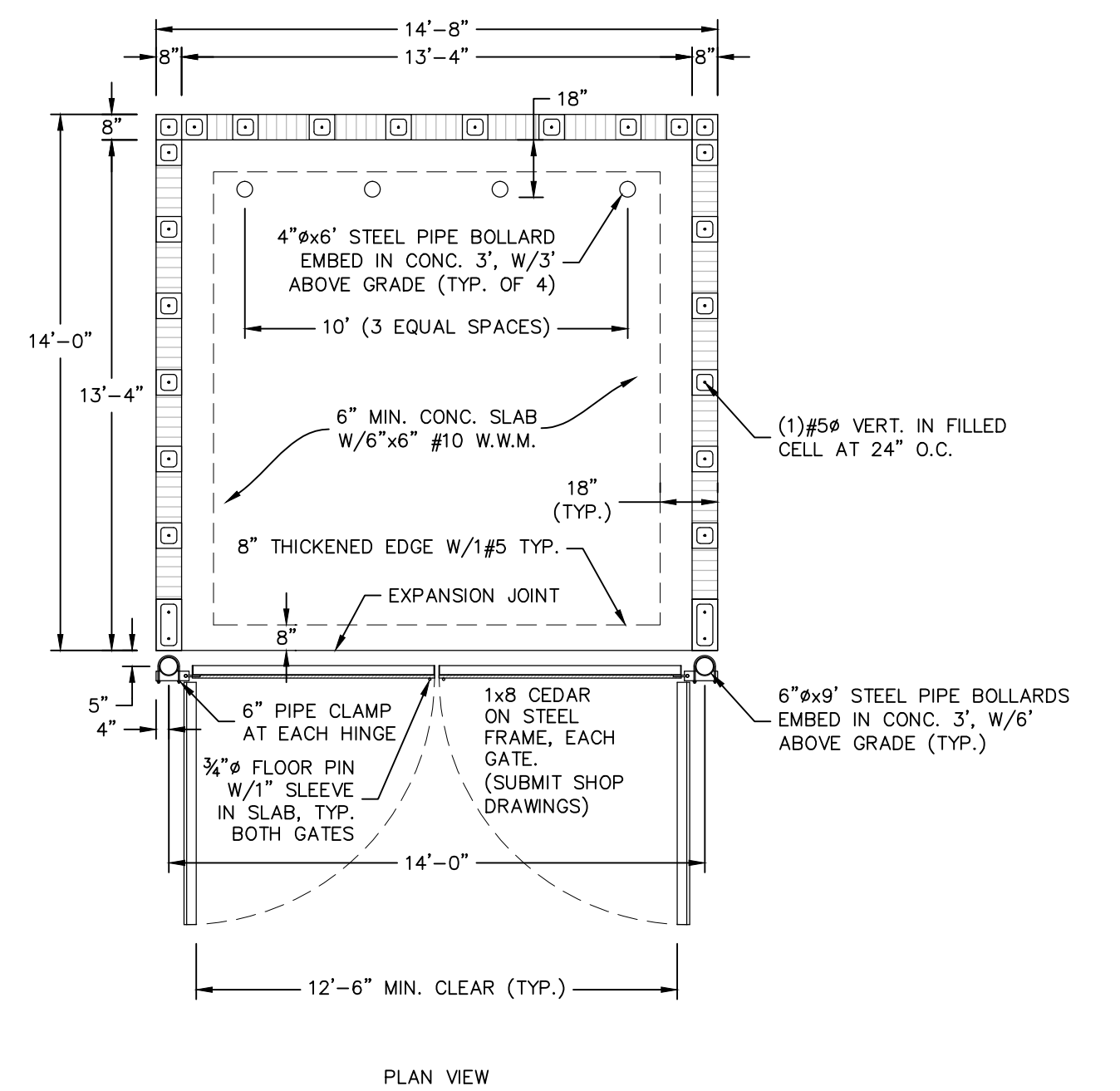
CONCRETE WHEEL STOP
N.T.S.



SPACE REQUIREMENTS AND CLEARANCES

PLACEMENT CONSIDERATIONS
IF RACKS ARE TO BE PLACED IN 'PARALLEL,' PLEASE ALLOW 12' (FEET) ON CENTER OF SPACING BETWEEN THE RACKS. THIS PERMITS 4 1/2' (FEET) CLEARANCE FOR BICYCLES ON EACH RACK WITH A 3' (FEET) COMMON AREA IN BETWEEN FOR INGRESS AND EGRESS.

IF RACKS ARE TO BE PLACED IN 'SERIES,' PLEASE ALLOW A MINIMUM OF 2' (FEET) ON CENTER TO ACHIEVE MAXIMUM RACK CAPACITY. PLEASE NOTE: THE RACKS CAN BE PLACED 1' (FOOT) ON CENTER TO ACHIEVE A 'CONTINUOUS' LOOK BUT WILL RESULT IN A LOSS OF ONE SPACE AS THE END POSITION COUNTS AS A SPACE.



DUMPSTER ENCLOSURE (SINGLE)
N.T.S.

REVISIONS

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

HAGAN
ENGINEERING

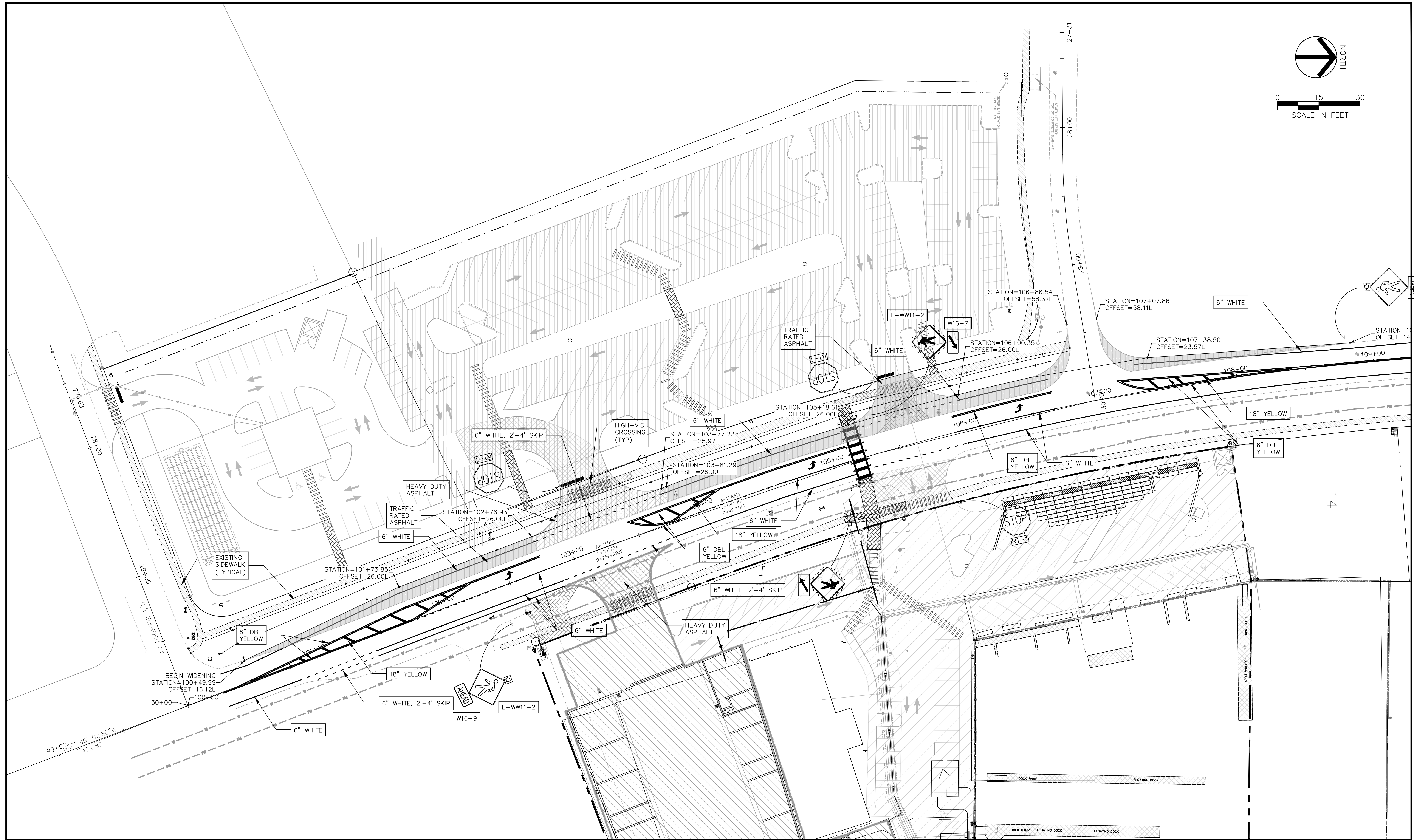
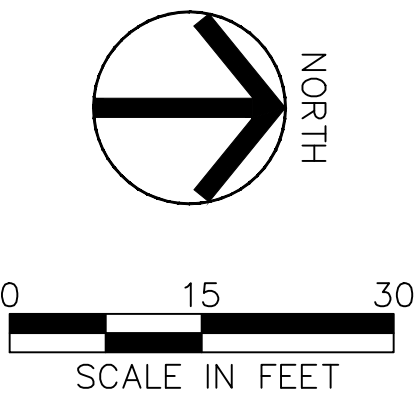
1250 TAMiami TRAIL N., STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

PERMIT PLANS

C. D. HAGAN, P.E.
FL REG.# 38649
EB #29474
DATE:

DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	C-19

SITE DETAILS



REVISIONS

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

HAGAN
ENGINEERING

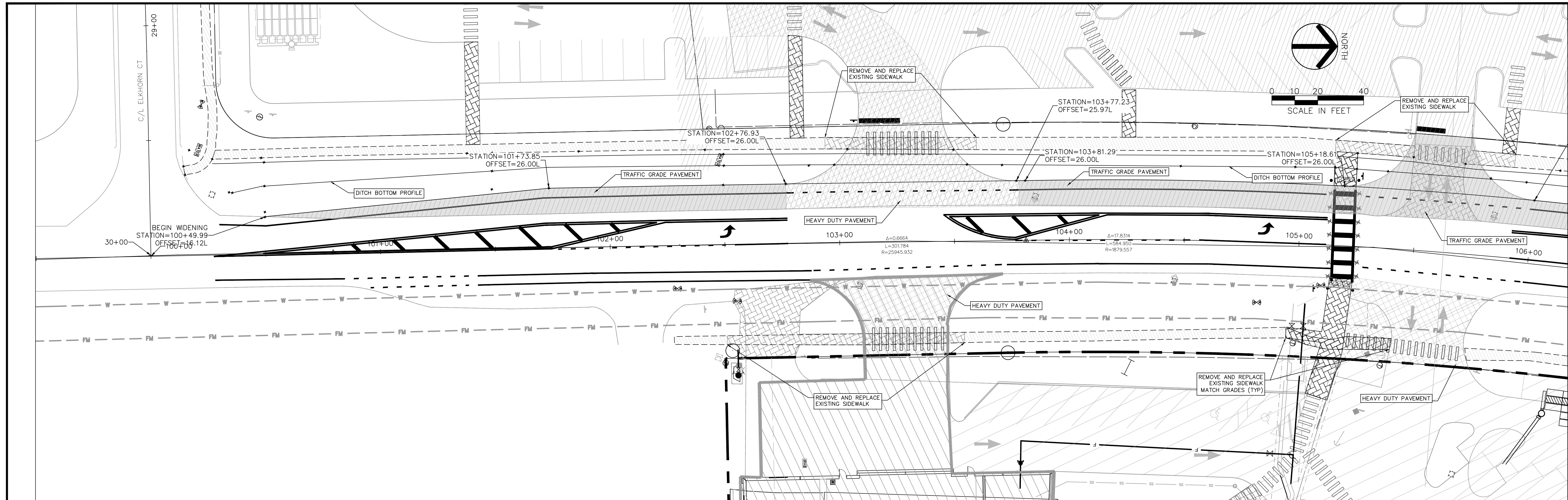
1250 TAMiami TRAIL N., STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

PERMIT PLANS

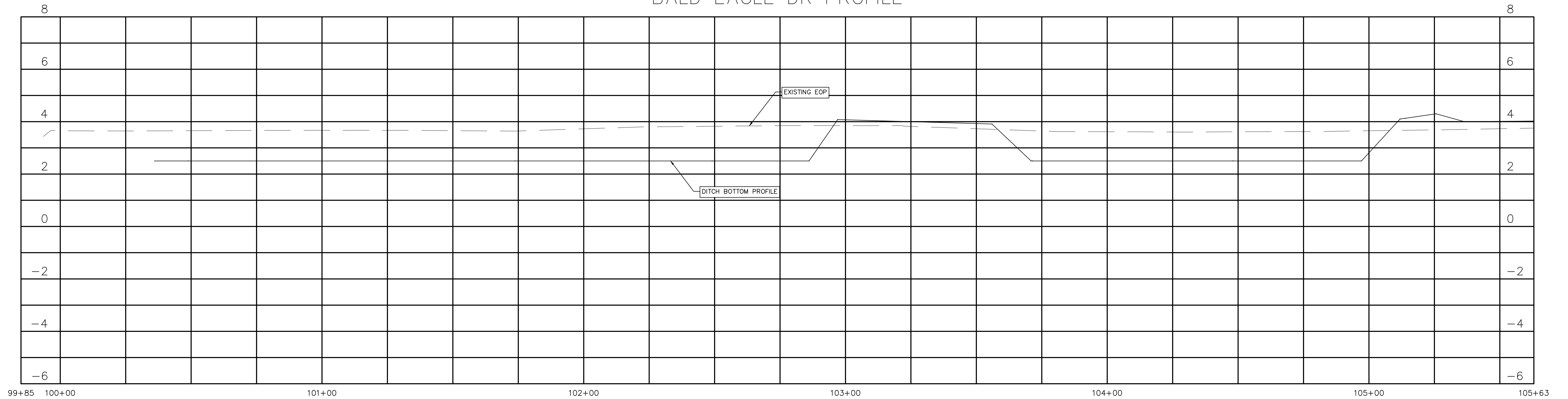
BALD EAGLE DR - SIGNING & MARKING

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:

DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	C-20



BALD EAGLE DR PROFILE



REVISIONS

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

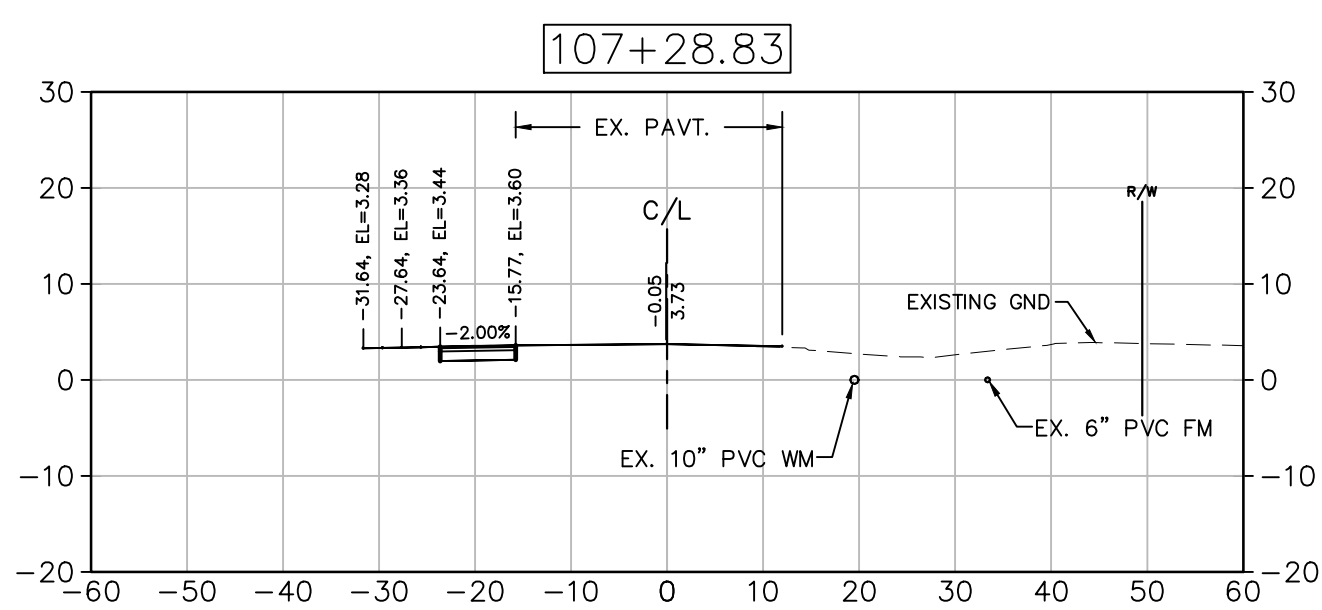
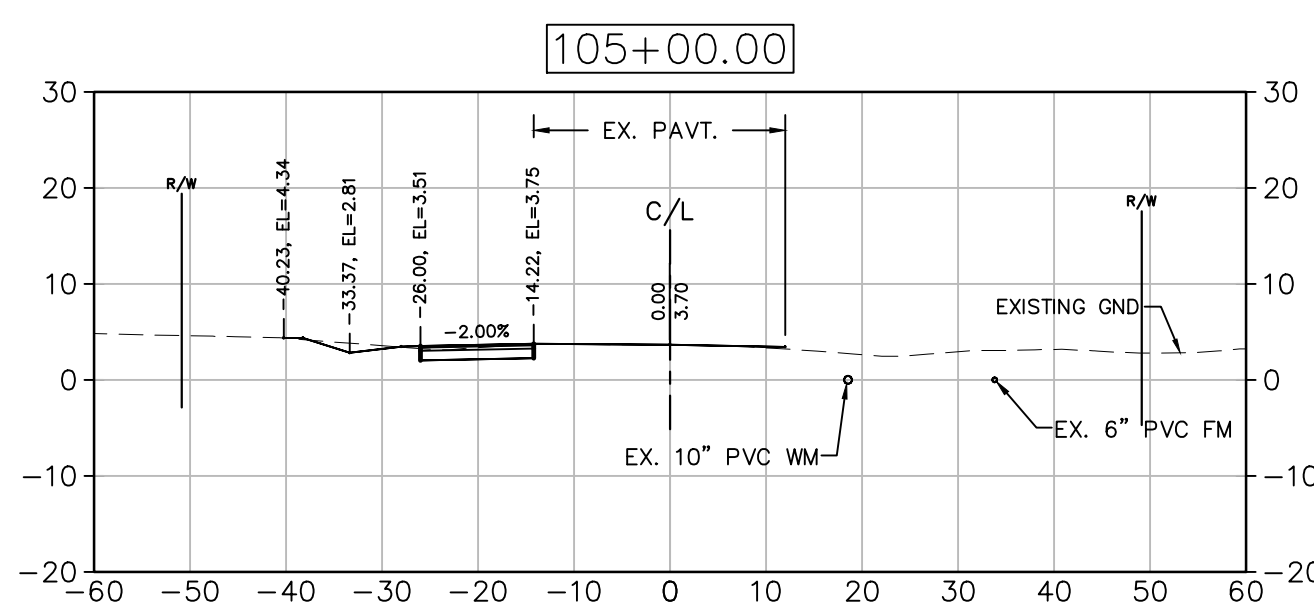
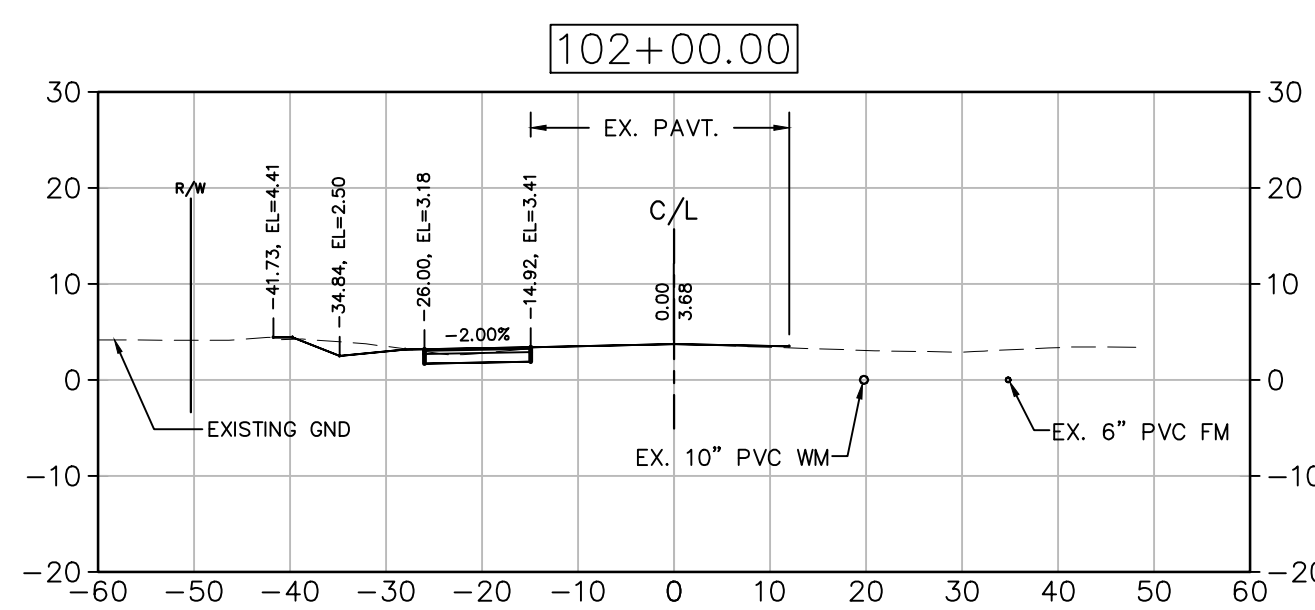
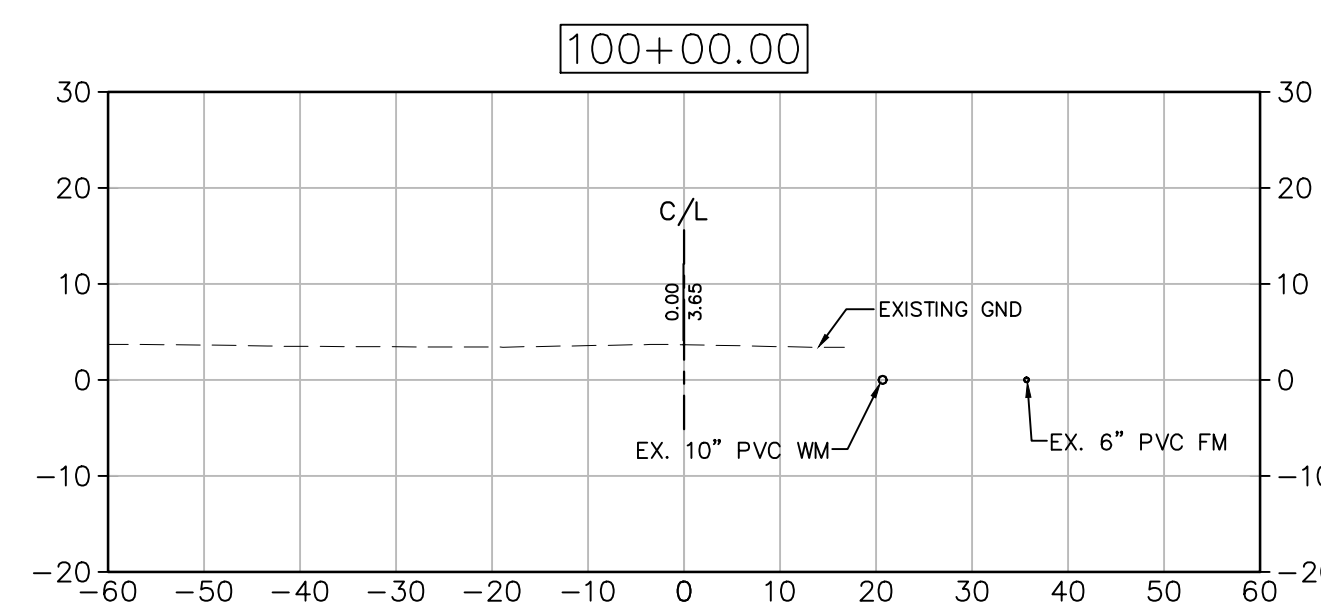
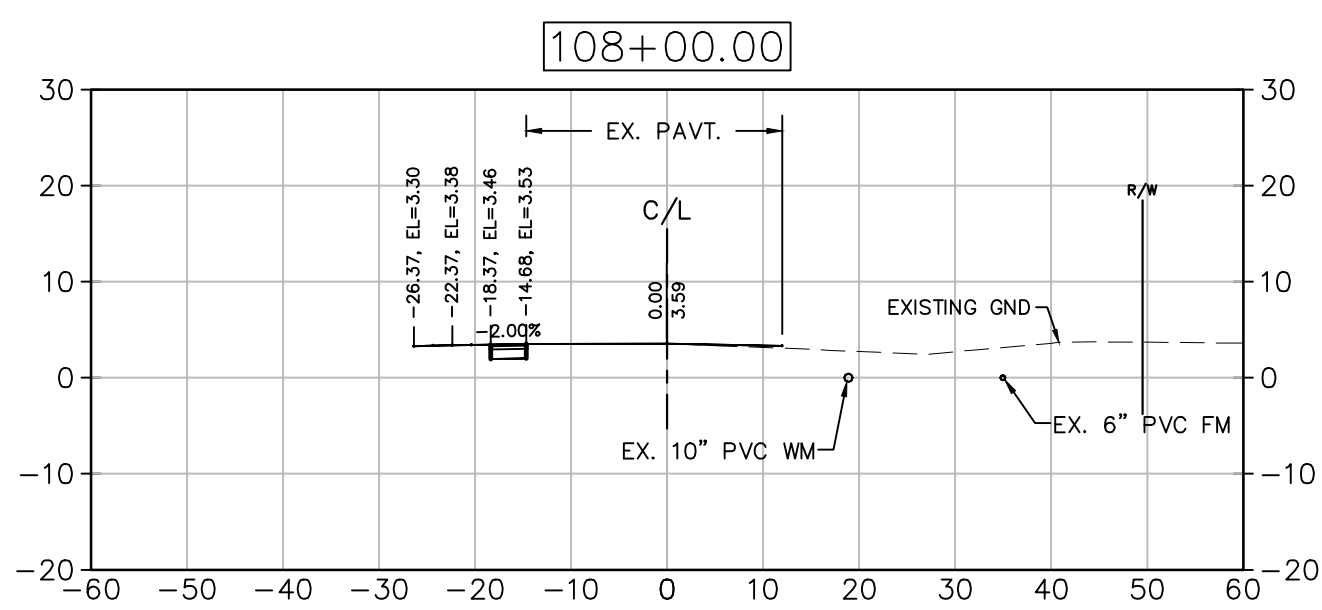
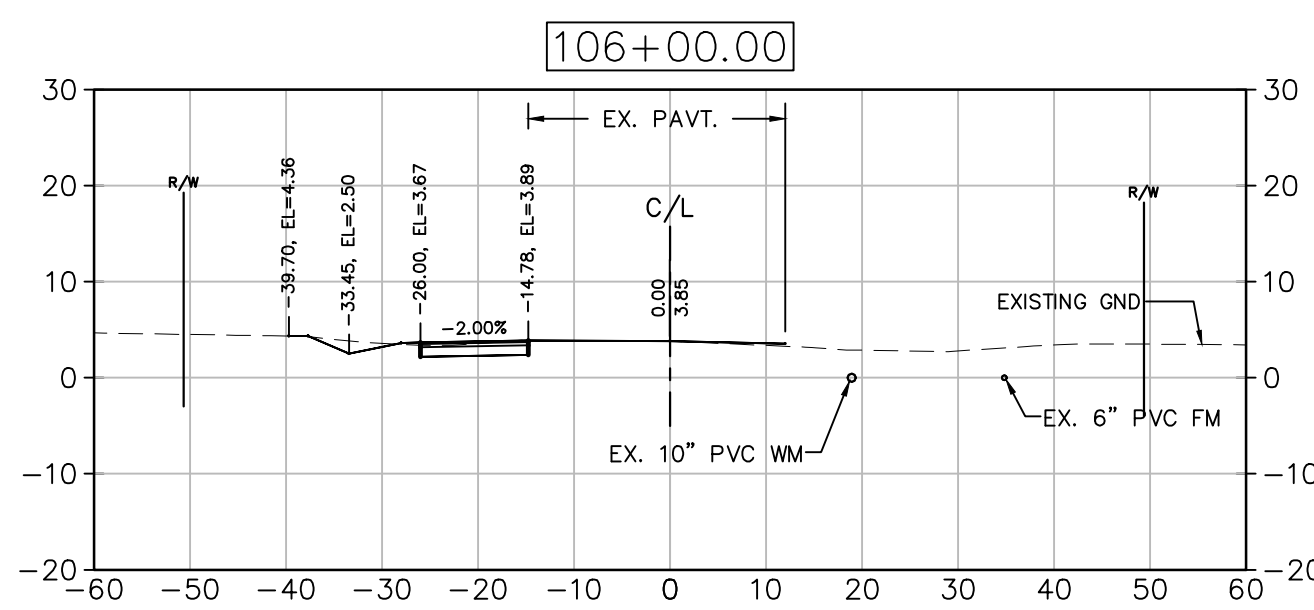
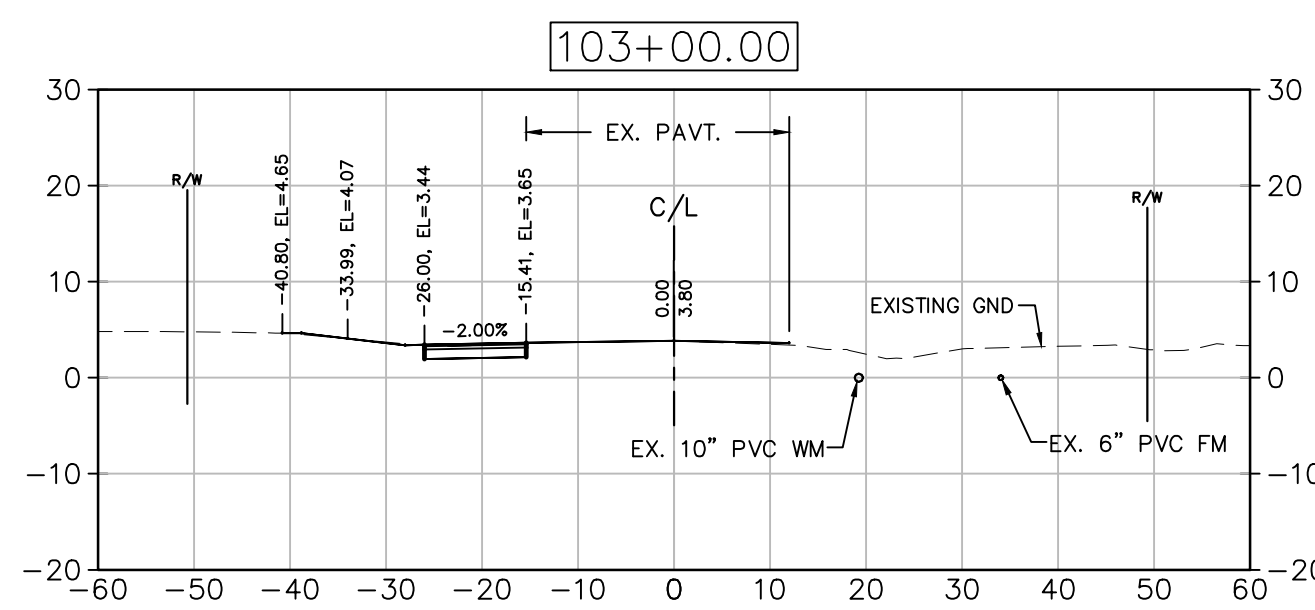
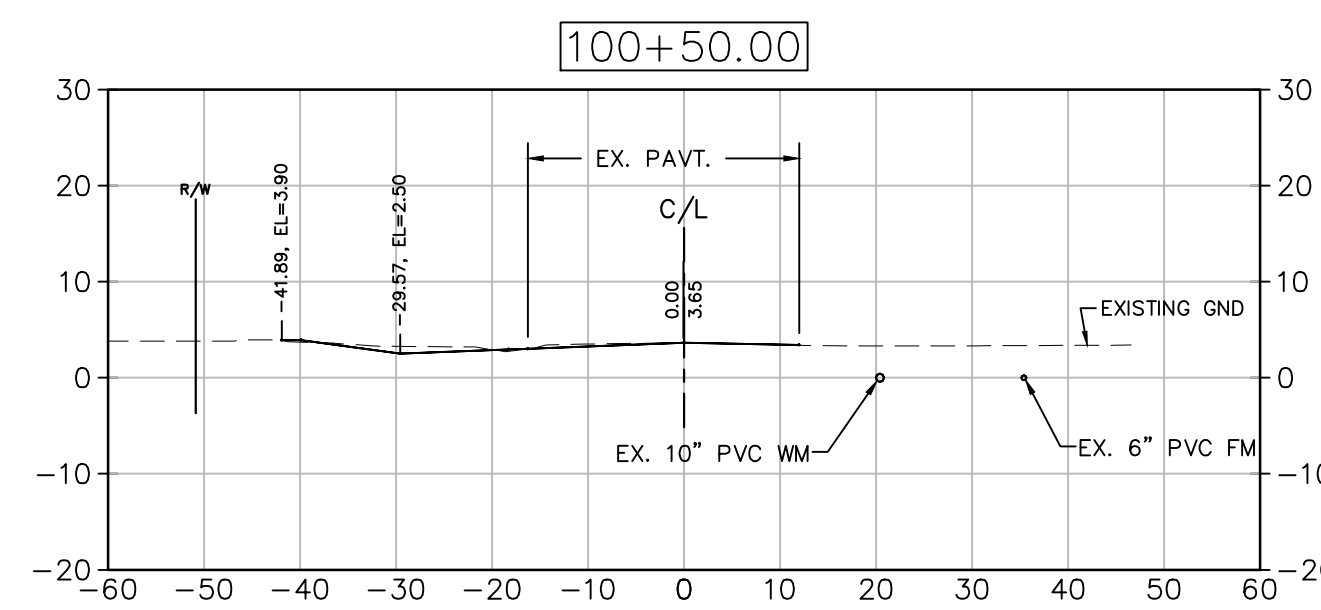
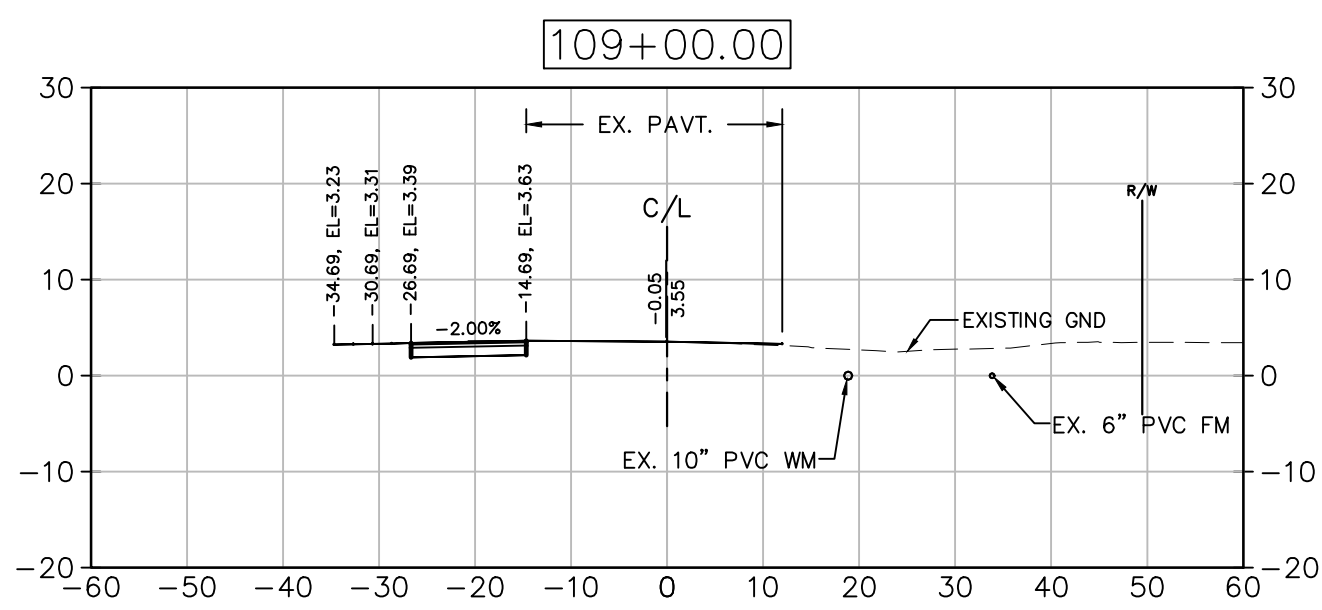
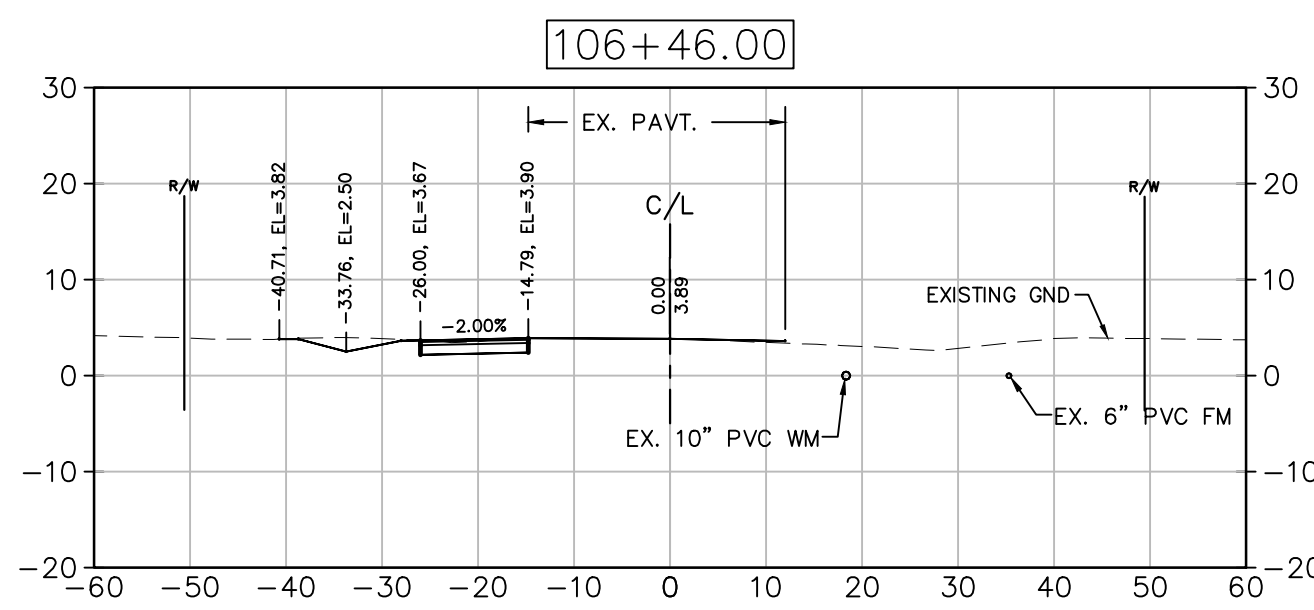
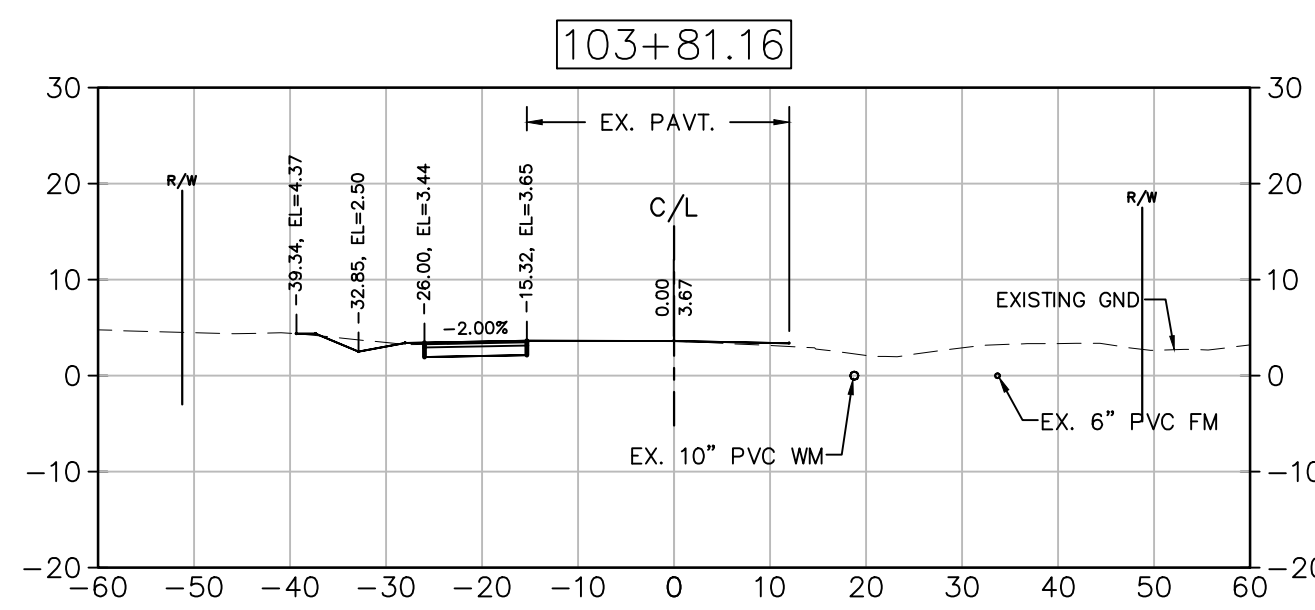
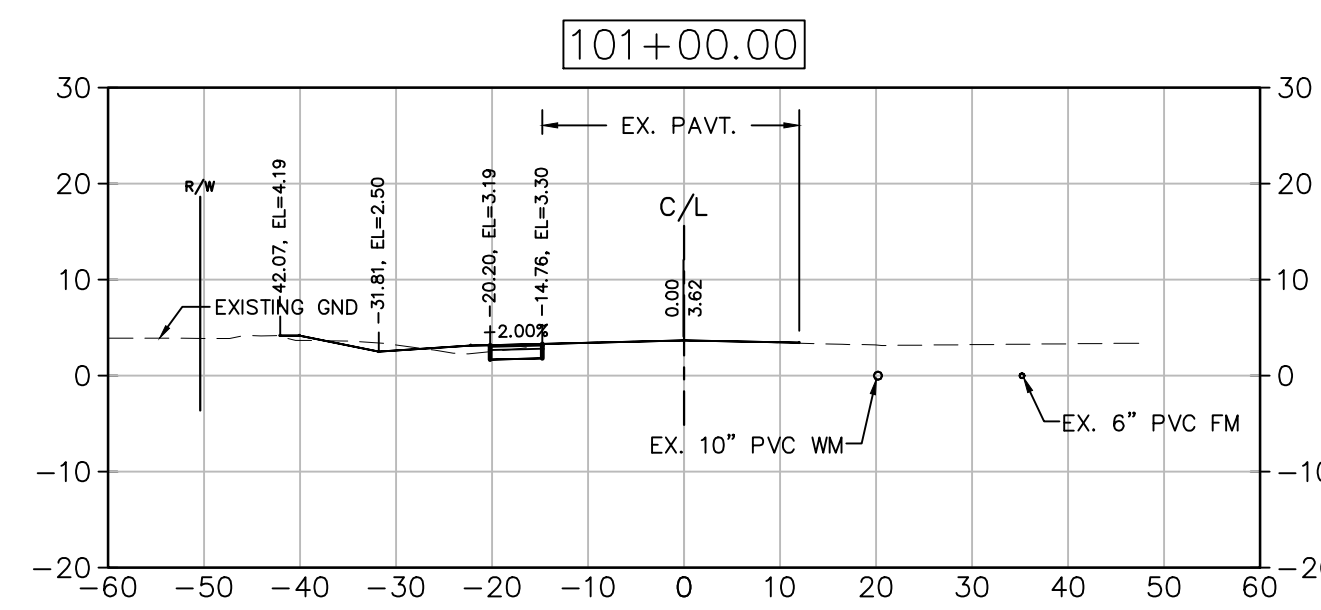
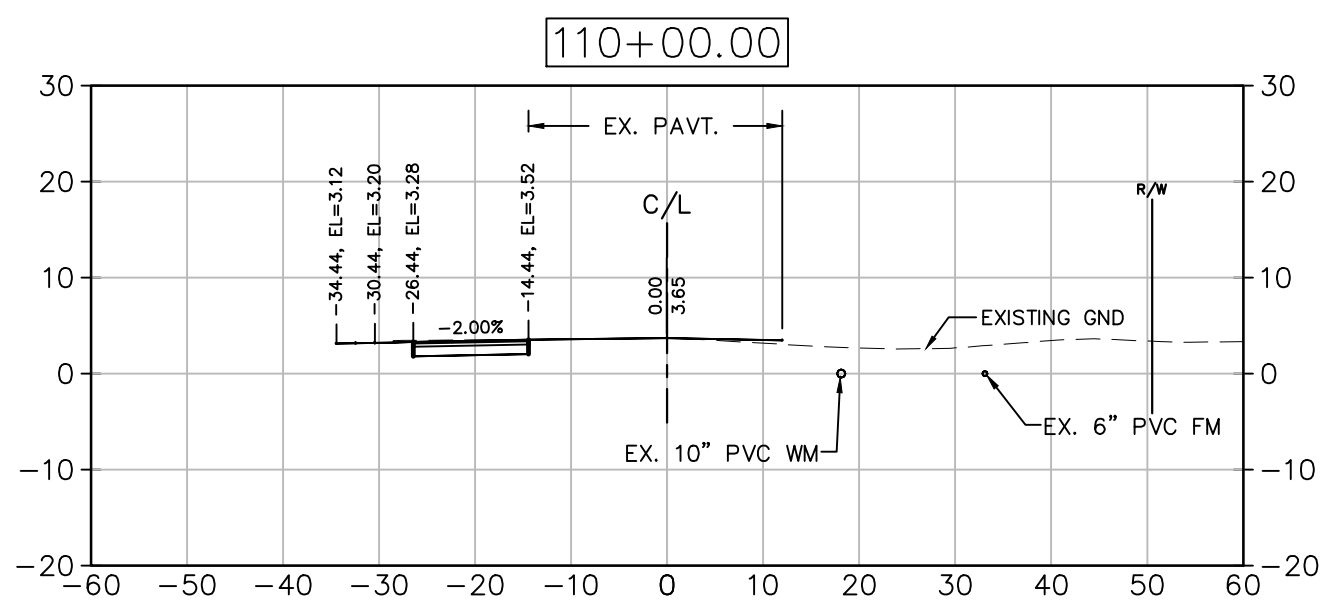
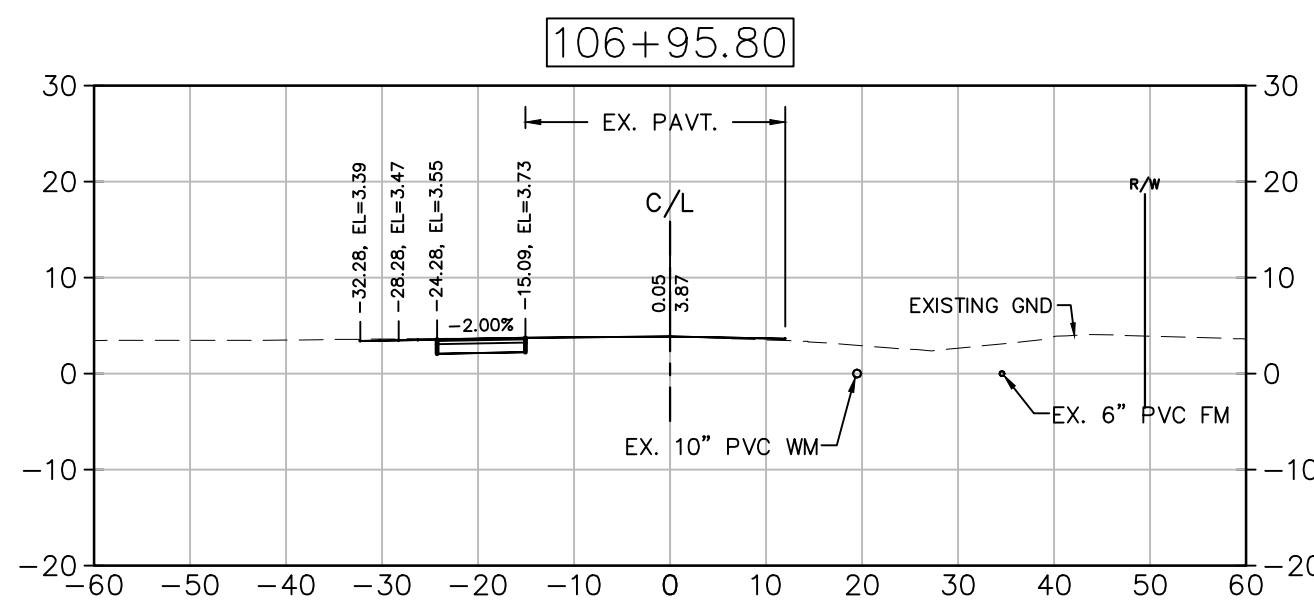
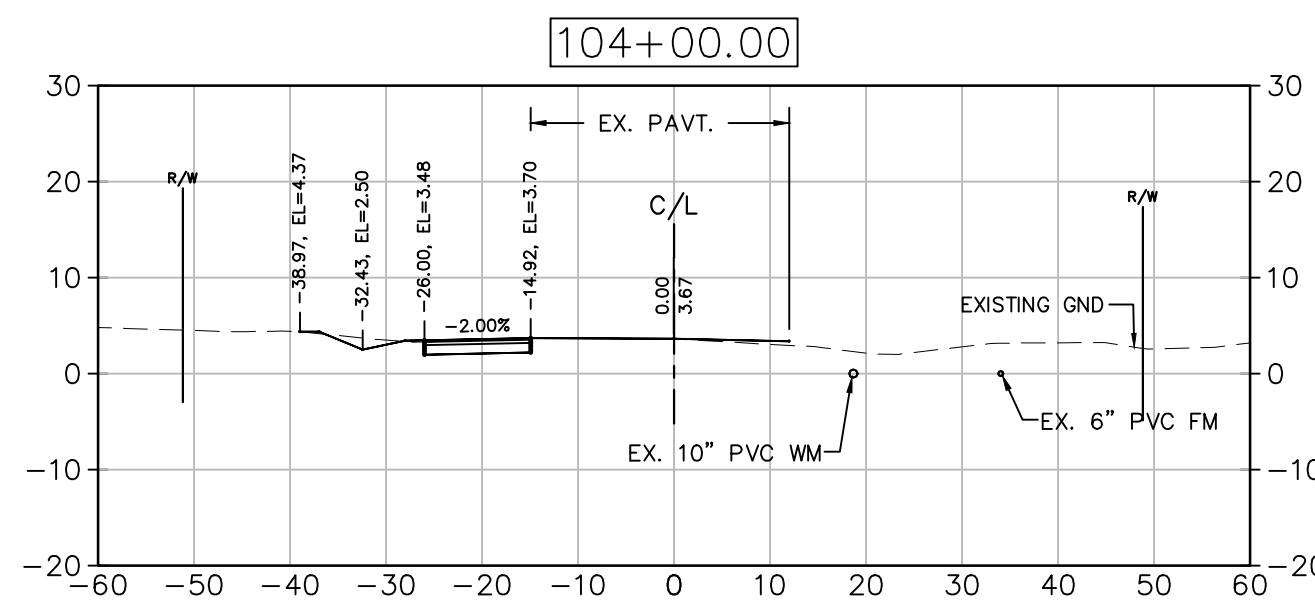
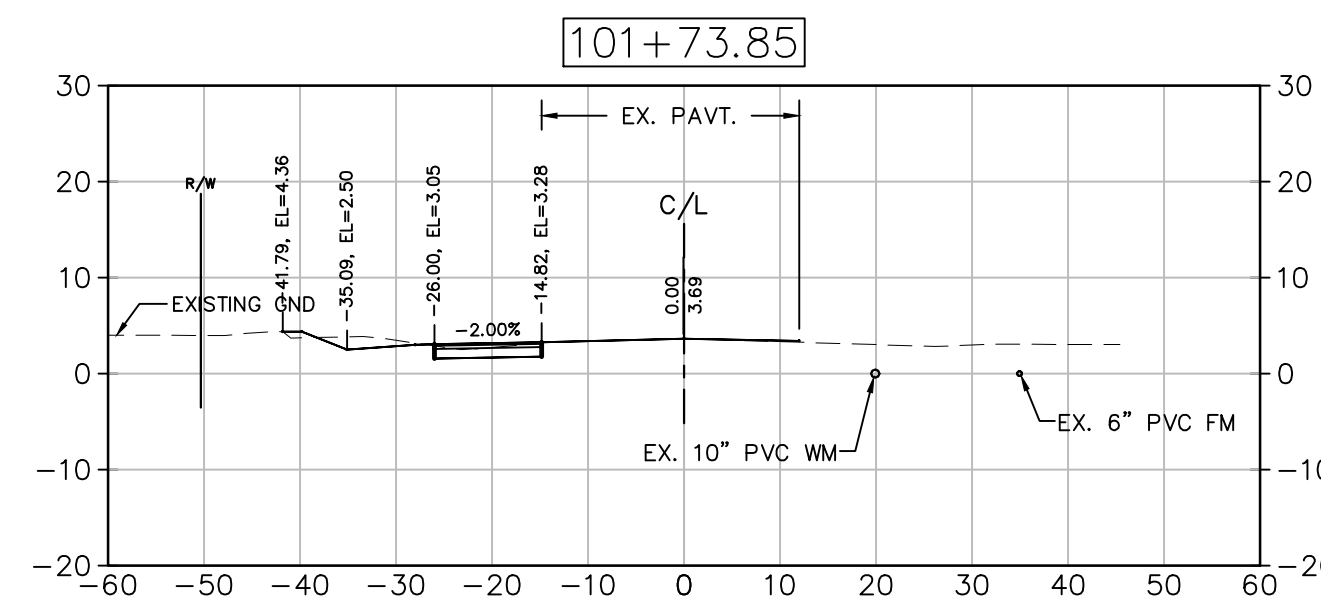


PERMIT PLANS

BALD EAGLE PLAN & PROFILE

C. D. HAGAN, P.E.
FL. REG. #38649
EB #29474
DATE:

DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	C-21



REVISIONS

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

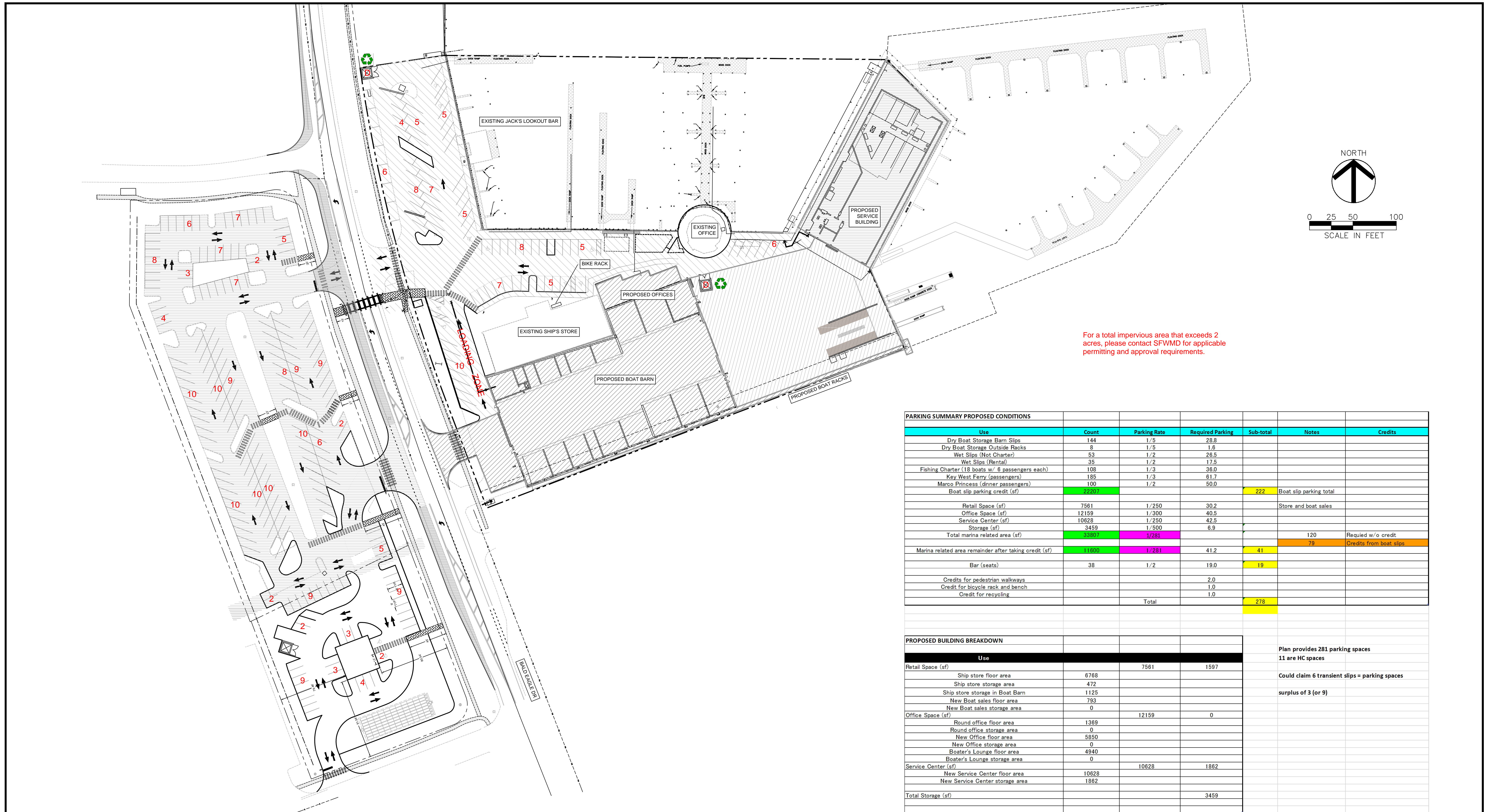


PERMIT PLANS

BALD EAGLE DR - CROSS SECTIONS

C. D. HAGAN, P.E.
FL. REG. #38649
EB #29474
DATE:

DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	C-23



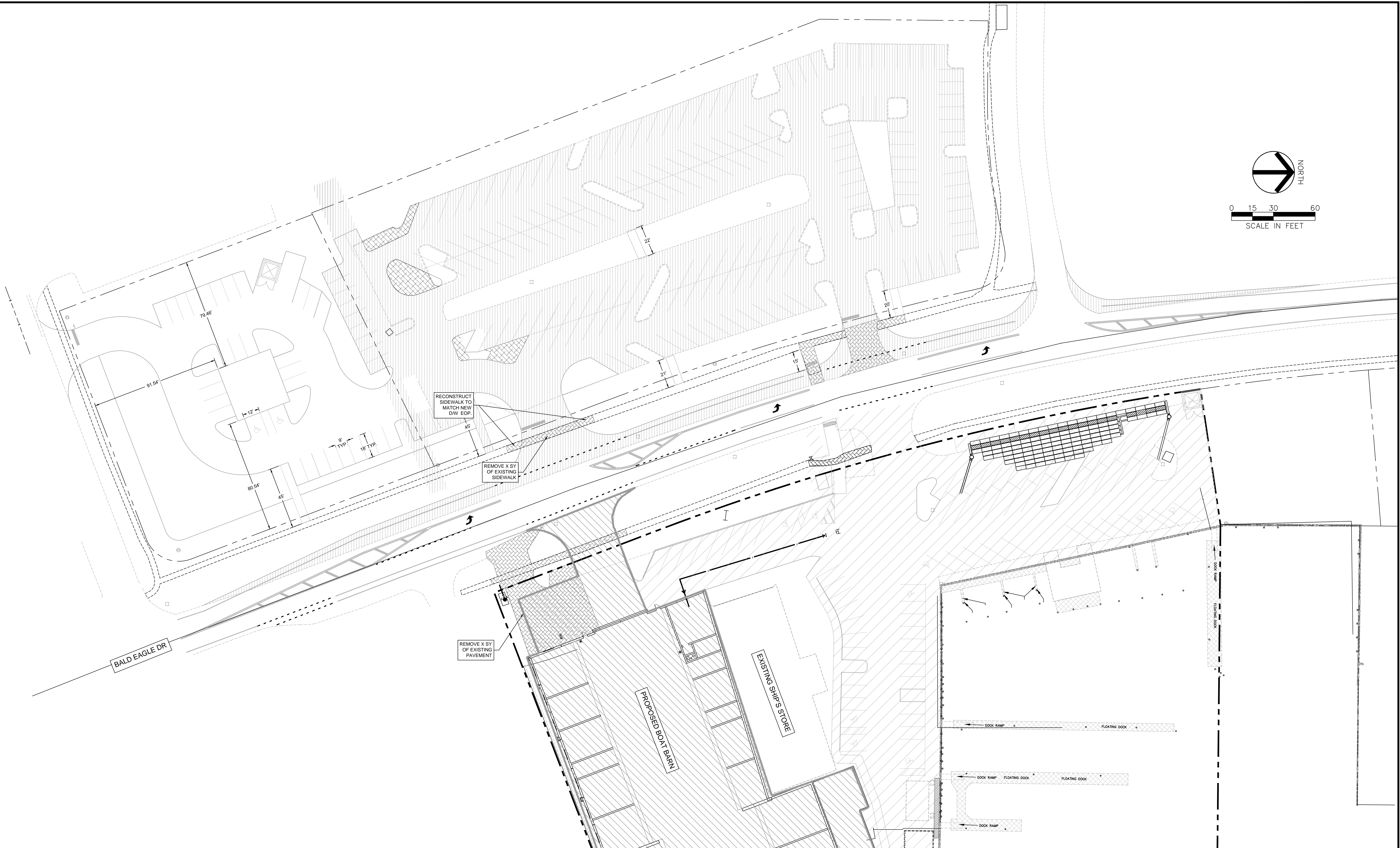
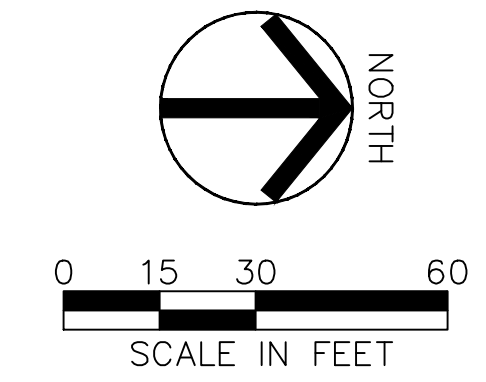
For a total impervious area that exceeds 2 acres, please contact SFWMD for applicable permitting and approval requirements.

PARKING SUMMARY PROPOSED CONDITIONS						
Use	Count	Parking Rate	Required Parking	Sub-total	Notes	Credits
Dry Boat Storage Barn Slips	144	1/5	28.8			
Dry Boat Storage Outside Racks	8	1/5	1.6			
Wet Slips (Not Charter)	53	1/2	26.5			
Wet Slips (Rental)	35	1/2	17.5			
Fishing Charter (18 boats w/ 6 passengers each)	108	1/3	36.0			
Key West Ferry (passengers)	185	1/3	61.7			
Marco Princess (dinner passengers)	100	1/2	50.0			
Boat slip parking credit (sf)	22207			222	Boat slip parking total	
Retail Space (sf)	7561	1/250	30.2		Store and boat sales	
Office Space (sf)	12159	1/300	40.5			
Service Center (sf)	10628	1/250	42.5			
Storage (sf)	3459	1/500	6.9			
Total marina related area (sf)	33807	1/281			120	Required w/o credit
Marina related area remainder after taking credit (sf)	11600	1/281	41.2	41	79	Credits from boat slips
Bar (seats)	38	1/2	19.0	19		
Credits for pedestrian walkways			2.0			
Credit for bicycle rack and bench			1.0			
Credit for recycling			1.0			
		Total		278		

PROPOSED BUILDING BREAKDOWN			
Use			
Retail Space (sf)		7561	1597
Ship store floor area	6768		
Ship store storage area	472		
Ship store storage in Boat Barn	1125		
New Boat sales floor area	793		
New Boat sales storage area	0	12159	0
Office Space (sf)			
Round office floor area	1369		
Round office storage area	0		
New Office floor area	5850		
New Office storage area	0		
Boater's Lounge floor area	4940		
Boater's Lounge storage area	0		
Service Center (sf)		10628	1862
New Service Center floor area	10628		
New Service Center storage area	1862		
Total Storage (sf)			3459

Plan provides 281 parking spaces
11 are HC spaces
Could claim 6 transient slips = parking spaces surplus of 3 (or 9)

This site development plan only approves the following uses on 900 Bald Eagle Drive: Boat Sales and on 900 and 950 Bald Eagle Drive: Parking for Rose Marina.



REVISIONS	

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

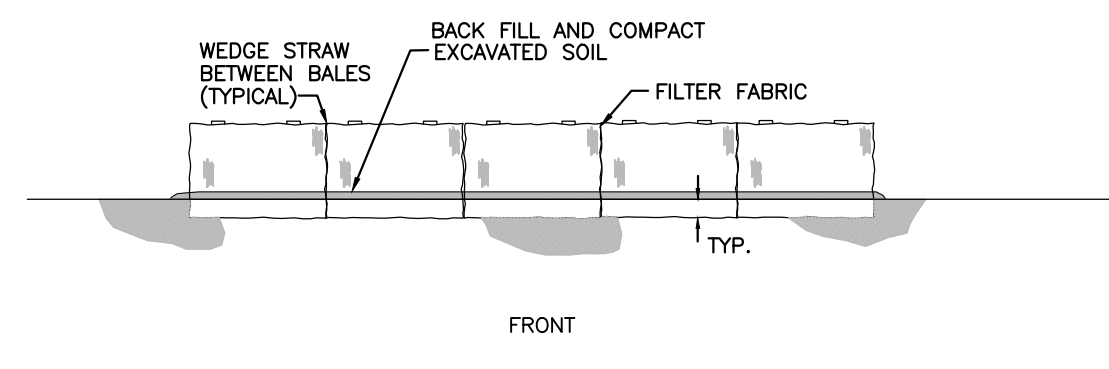
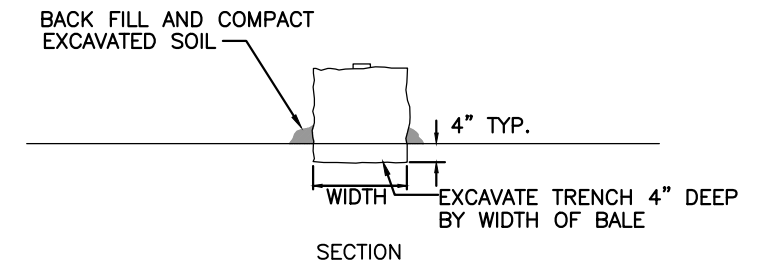
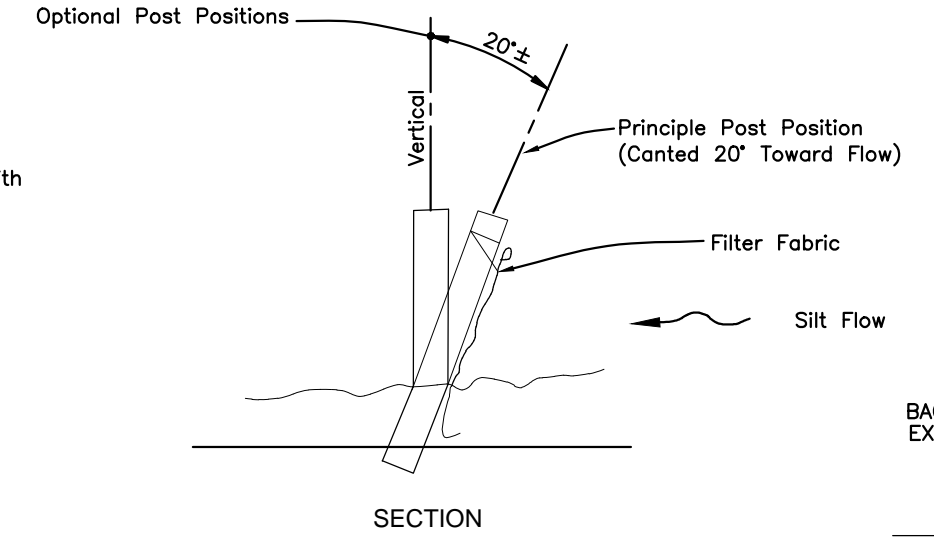
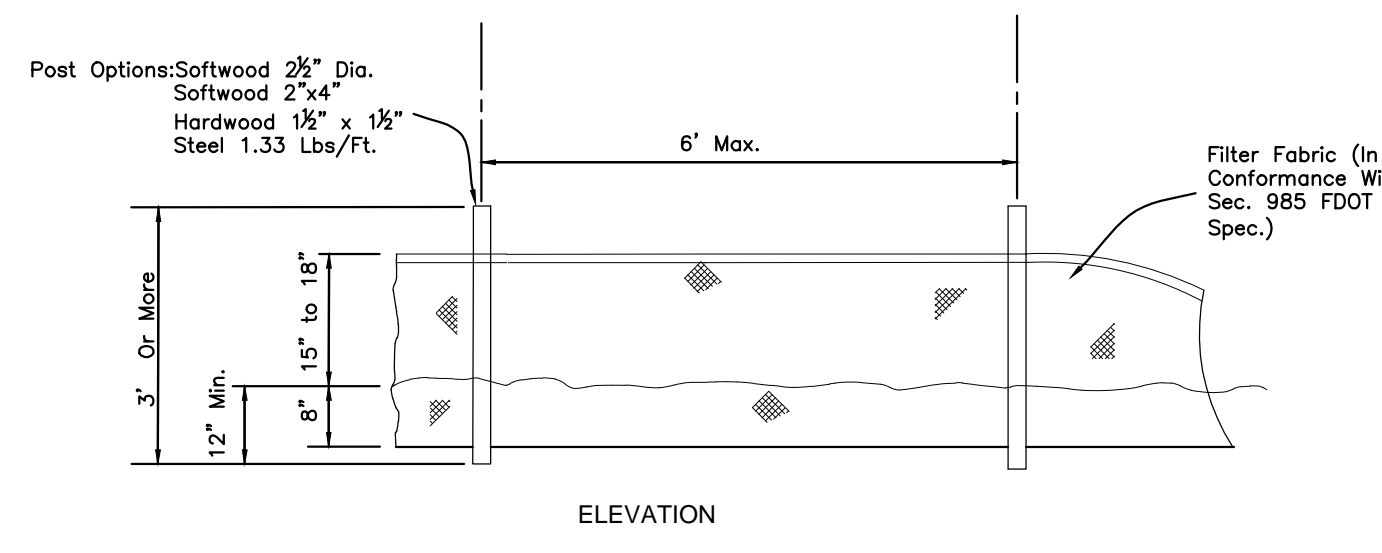
HAGAN
ENGINEERING

1250 TAMiami TRAIL N., STE. 203B
Naples, Florida 34102
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PERMIT PLANS

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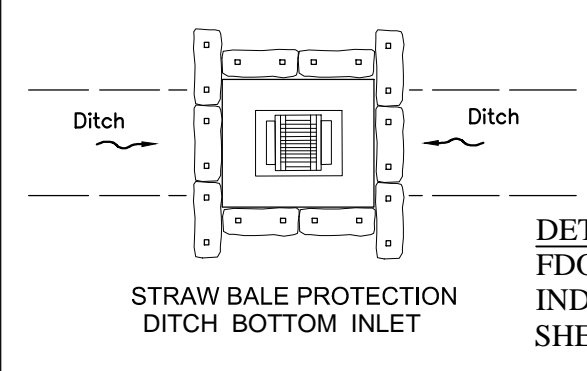
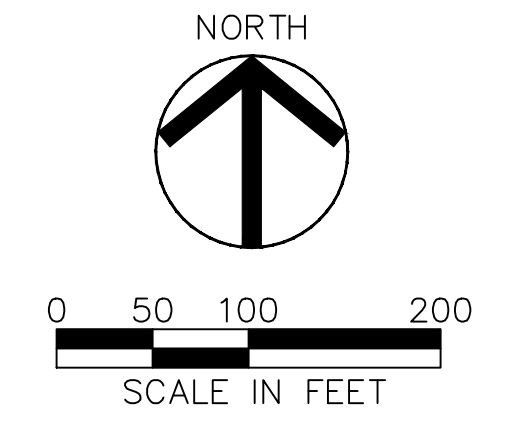
DEMOLITION PLAN			
DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	C-25



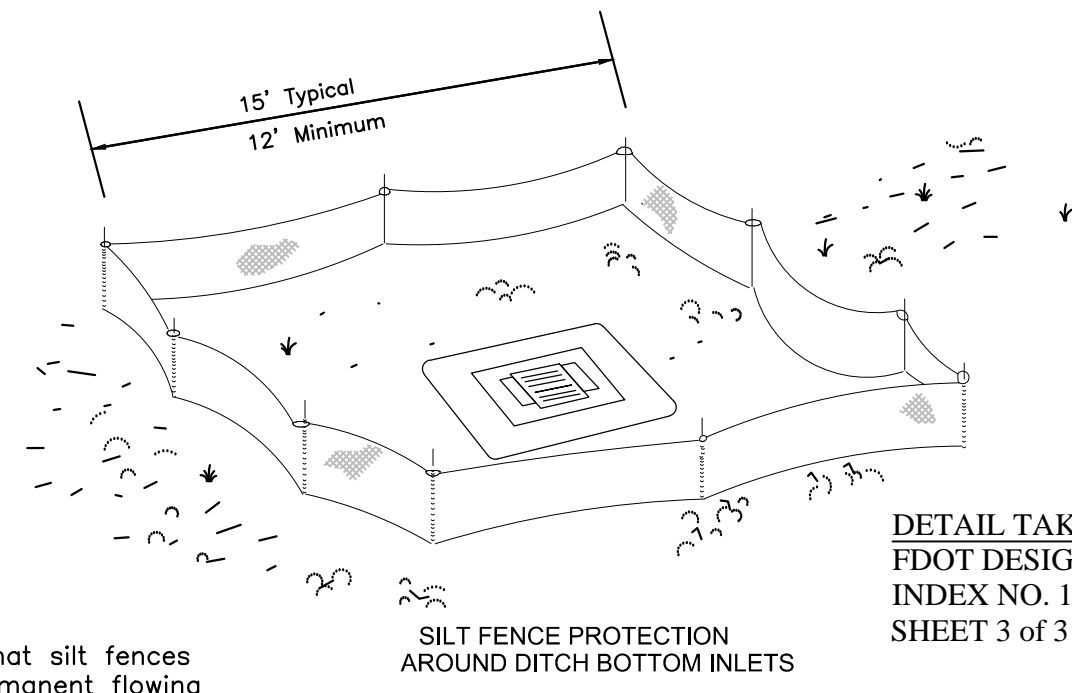
TYPE III SILT FENCE
N.T.S.

DETAIL TAKEN FROM:
FDOT DESIGN STANDARDS
INDEX NO. 102
SHEET 3 of 3

STRAW BALE BARRIER
N.T.S.



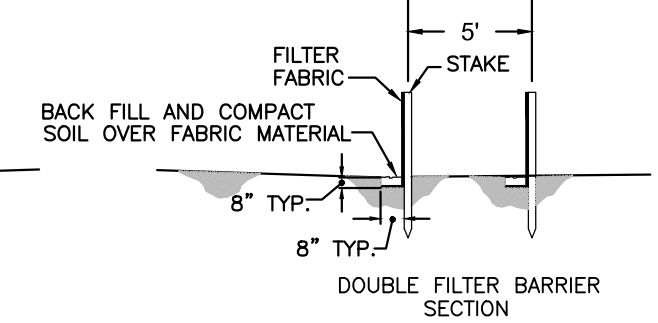
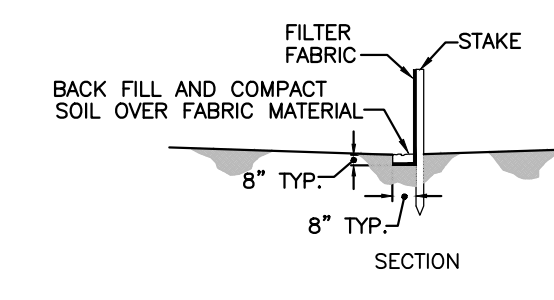
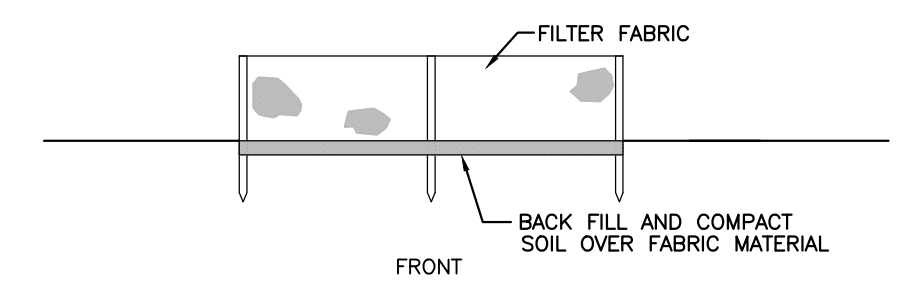
DETAIL TAKEN FROM:
FDOT DESIGN STANDARDS
INDEX NO. 102
SHEET 2 of 3



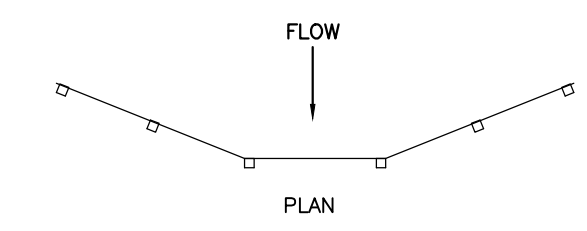
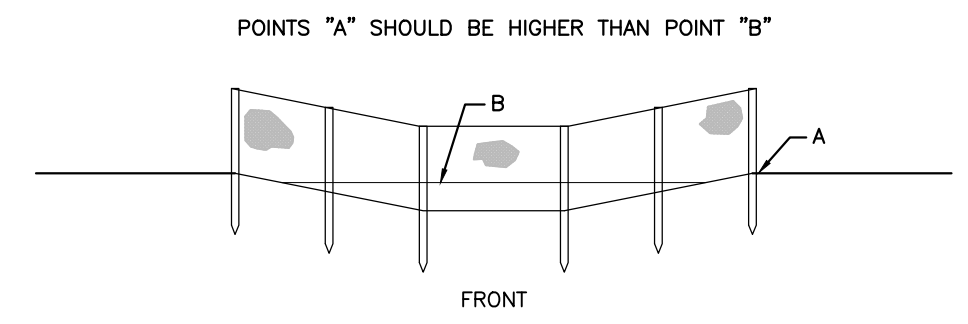
DETAIL TAKEN FROM:
FDOT DESIGN STANDARDS
INDEX NO. 102
SHEET 3 of 3

Do not deploy in a manner that silt fences will act as a dam across permanent flowing watercourses. Silt fences are to be used at upland locations and turbidity barriers used at permanent bodies of water.

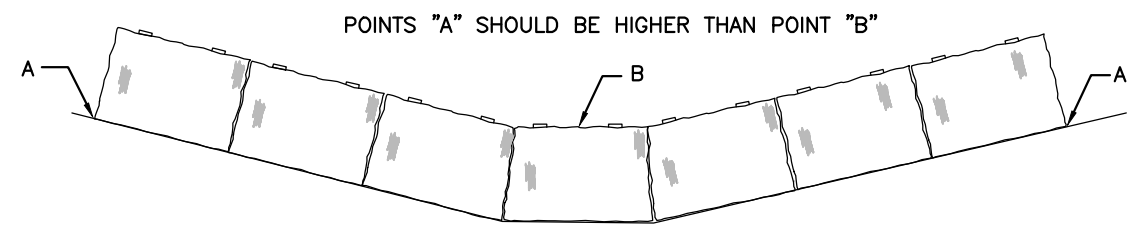
PROTECTION AROUND INLETS OR SIMILAR STRUCTURES
N.T.S.



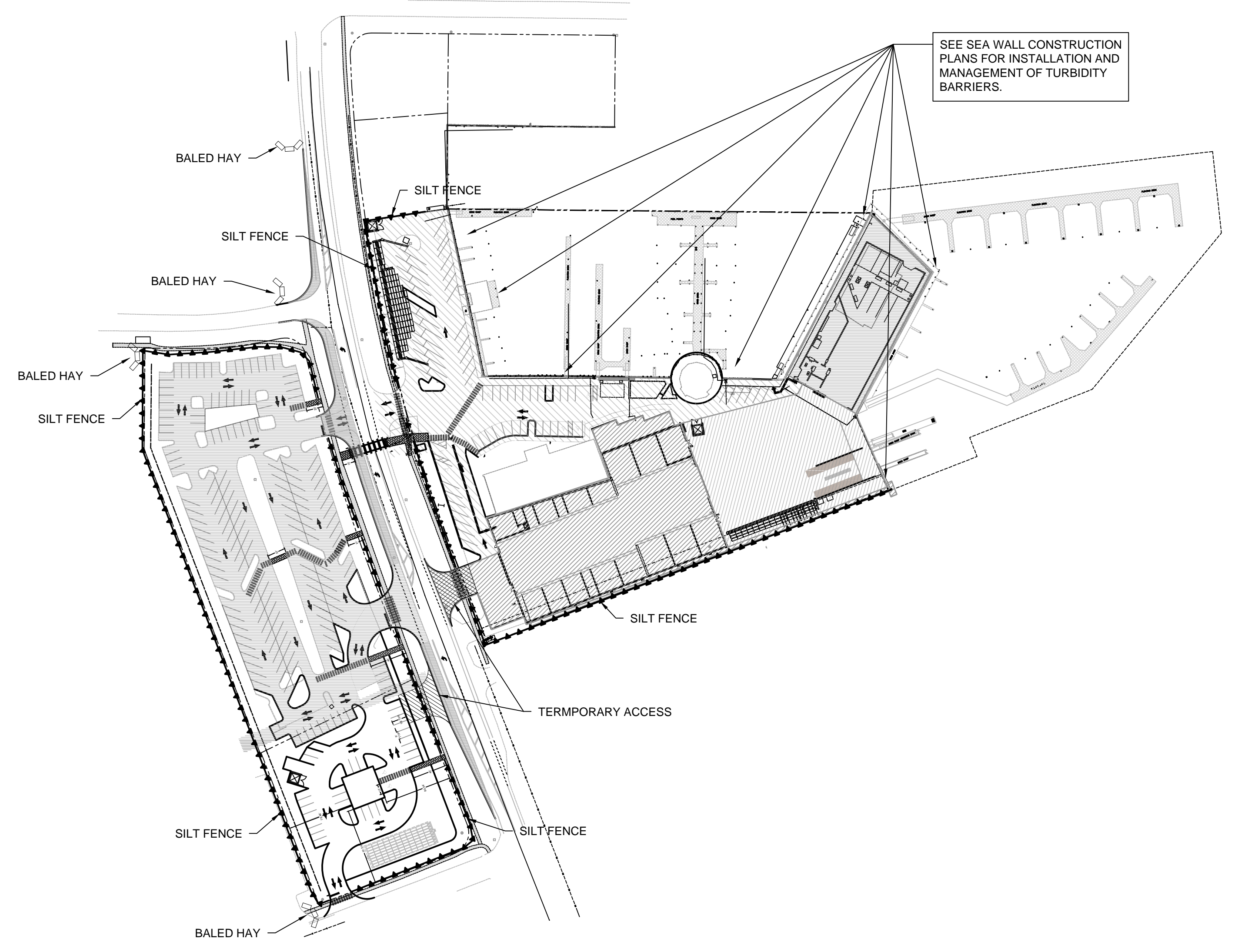
FILTER BARRIER
N.T.S.



**PROPER PLACEMENT OF FILTER BARRIER
IN DRAINAGE WAY**
N.T.S.



**PROPER PLACEMENT OF STRAW BALE BARRIER
IN DRAINAGE WAY**
N.T.S.



SEE SEA WALL CONSTRUCTION PLANS FOR INSTALLATION AND MANAGEMENT OF TURBIDITY BARRIERS.

CLEARING AND EROSION NOTES:

1. EXOTIC VEGETATION, AS DEFINED BY THE COLLIER COUNTY AND S.F.W.M.D., SHALL BE REMOVED FROM THE SITE AND SUBSEQUENT ANNUAL EXOTIC REMOVAL (IN PERPETUITY) SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER.
2. THE REVIEW AND APPROVAL OF IMPROVEMENT PLANS DOES NOT AUTHORIZE THE CONSTRUCTION OF REQUIRED IMPROVEMENTS WHICH ARE INCONSISTENT WITH EASEMENTS OF RECORD.
3. NO EXISTING NATIVE VEGETATION WILL BE RETAINED IN THE CLEARED AREA. CONTRACTOR IS TO CLEAR & FILL LOTS DURING THE EXCAVATION OF THE POND.
4. BARRICADES AND SILT BARRIERS WILL REMAIN IN PLACE UNTIL FINAL GRADING AND SEEDING OR SODDING IS COMPLETE.
5. ALL PROPOSED INLETS SHALL BE PROTECTED WITH FILTER FABRIC DURING CONSTRUCTION.
6. ACCESS SHALL BE ON EXISTING PAVEMENT. DUST AND SOIL TRACKING ARE MANAGED ON SITE AS PART OF NORMAL BUSINESS OPERATIONS.
7. ALL DISTURBED AREAS TO BE STABILIZED WITH SOD OR SEED AND MULCH.
8. ALL PROPOSED EROSION CONTROL MEASURES ARE RECOMMENDED AND MAY BE MODIFIED AS NEEDED BY THE CONTRACTOR.
9. PLASTIC SNOW FENCING WILL BE USED AS A BARRICADE TO PROTECT PRESERVED VEGETATION.
10. VEGETATION TO REMAIN SHALL BE PROTECTED WITH APPROVED BARRICADING AND BARRICADING WILL REMAIN IN PLACE UNTIL COMPLETION OF CONSTRUCTION. (SECTION 3-9.5.1.5)

LEGEND	
	SILT FENCE
	STAKED HAY BALES

REVISIONS		

**ROSE MARINA
REDEVELOPMENT PLANS**

**CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA**

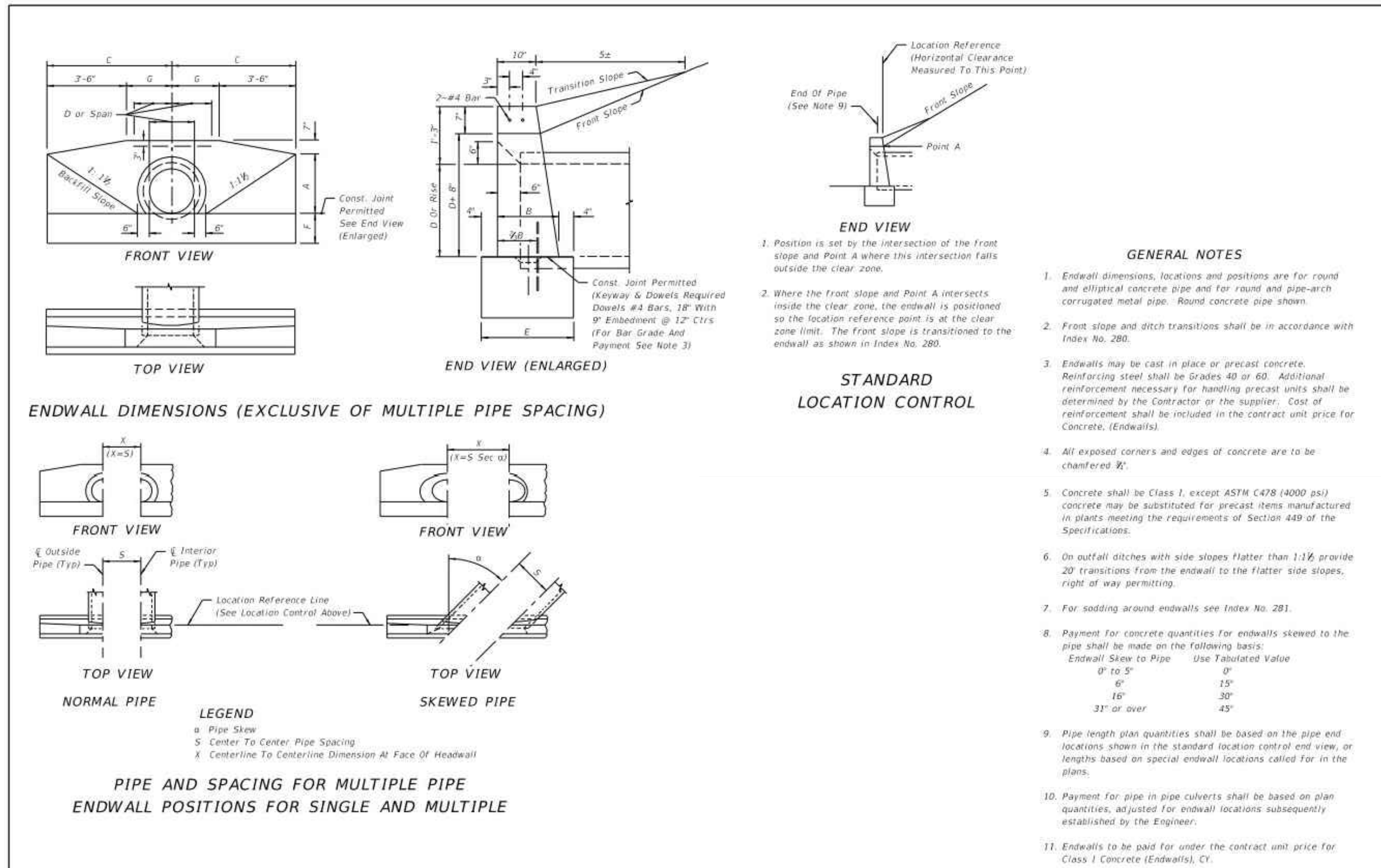
HAGAN
ENGINEERING

1250 TAMiami TRAIL N., STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

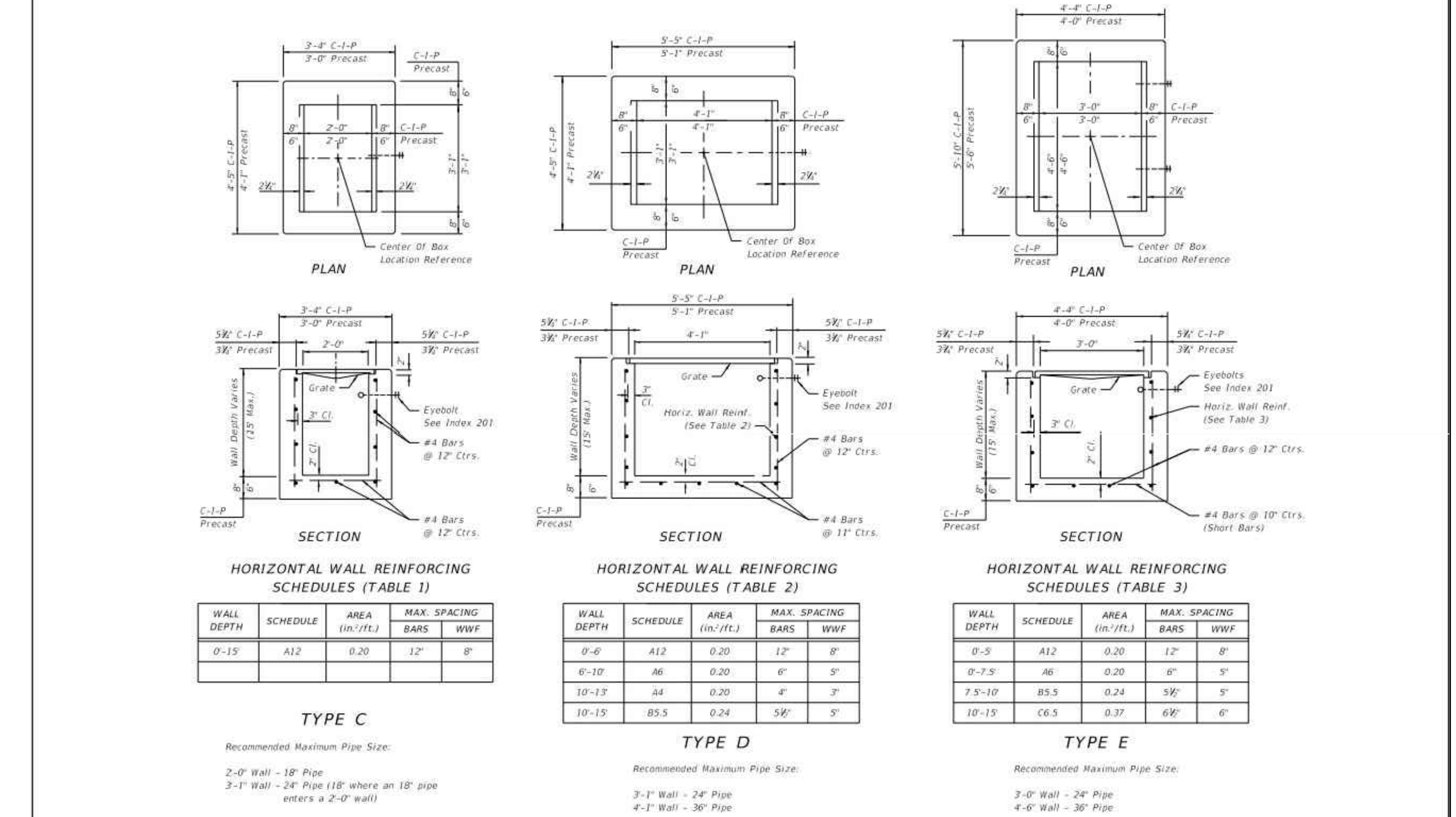
PERMIT PLANS

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:

EROSION CONTROL PLAN			
DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	C-26



LAST REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS FY 2012/2013	STRAIGHT CONCRETE ENDWALLS SINGLE AND MULTIPLE PIPE	INDEX NO.	SHEET NO.
07/01/09				250	1



LAST REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS FY 2012/2013	DITCH BOTTOM INLET TYPES C, D, E AND H	INDEX NO.	SHEET NO.
07/01/05				232	1

ROSE MARINA REDEVELOPMENT PLANS

CITY OF MARCO ISLAND COLLIER COUNTY, FLORIDA

DATA AND ESTIMATED QUANTITIES FOR ONE ENDWALL

ROUND CONCRETE AND CORRUGATED METAL PIPE

D	Opening Area (SF)		Dimensions		Class I Concrete (CY)												D																								
					Number And Type Of Pipe And Skew Angle Of Pipe																																				
					Triple			Metal			Concrete			Quadruple																											
15'	1.23	2.46	3.69	4.92	1'-11"	1'-3"	4'-0"	1'-10"	1'-2"	0'-6"	2'-7"	2'-7"	2'-8"	3'-0"	3'-8"	1.24	1.59	1.60	1.65	1.74	1.82	1.63	1.68	1.78	1.94	1.96	2.05	2.23	1.99	2.02	2.11	2.30	2.30	2.34	2.47	2.74	2.37	2.41	2.75	2.84	15'

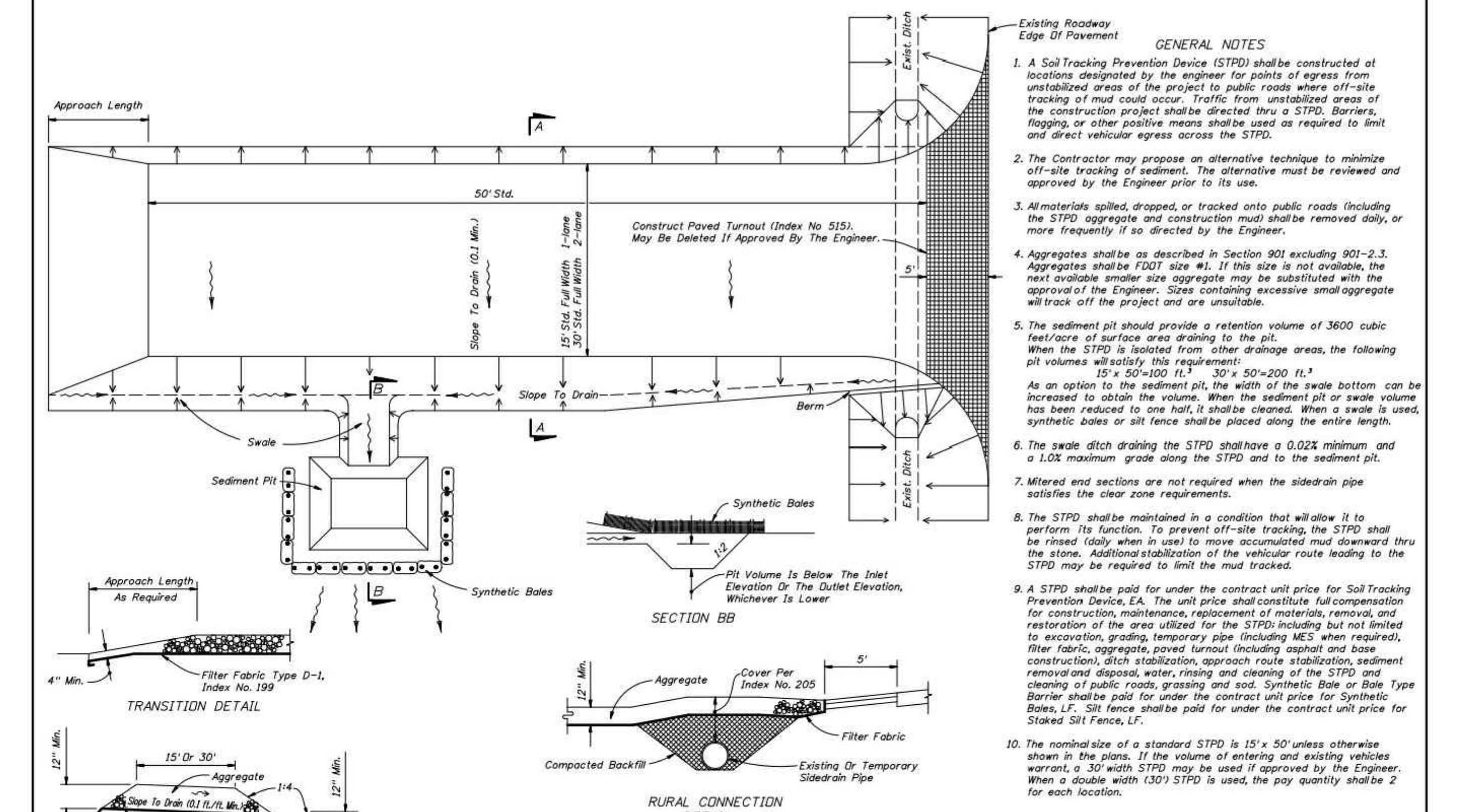
CORRUGATED METAL PIPE ARCH

Span	Rise	Opening Area (SF)		Dimensions		Class I Concrete (CY)												Span	Rise	Approx. Equiv. Round Pipe											
						Number Of Pipe And Skew Angle Of Pipe																									
						Triple			Metal			Concrete			Quadruple																
17'	13'	1.1	2.2	3.3	4.4	1'-9"	1'-2"	3'-10"	1'-10"	1'-2"	0'-4"	2'-6"	2'-6"	2'-7"	2'-11"	1.16	1.47	1.48	1.52	1.60	1.78	1.80	1.88	2.04	2.09	2.12	2.23	2.48	17'	13'	15"

CONCRETE ELLIPTICAL PIPE

Rise	Span	Opening Area (SF)		Dimensions		Class I Concrete (CY)												Rise	Span	Approx. Equiv. Round Pipe											
						Number Of Pipe And Skew Angle Of Pipe																									
						Triple			Metal			Concrete			Quadruple																
12"	10"	1.3	2.6	3.9	5.2	1'-8"	1'-2"	3'-9"	1'-10"	1'-2"	0'-3"	2'-10"	2'-10"	2'-11"	2'-3"	1.09	1.45	1.46	1.51	1.60	1.80	1.82	1.91	2.09	2.16	2.20	2.33	2.60	12"	10"	15"

LAST REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS FY 2012/2013	STRAIGHT CONCRETE ENDWALLS SINGLE AND MULTIPLE PIPE	INDEX NO.	SHEET NO.
07/01/01				250	2



LAST REVISION	DESCRIPTION:	FDOT DESIGN STANDARDS FY 2012/2013	DITCH BOTTOM INLET TYPES C, D, E AND H	INDEX NO.	SHEET NO.
07/01/05				232	1

HAGAN ENGINEERING

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Naples, Florida 34102
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PERMIT PLANS

FDOT DETAILS

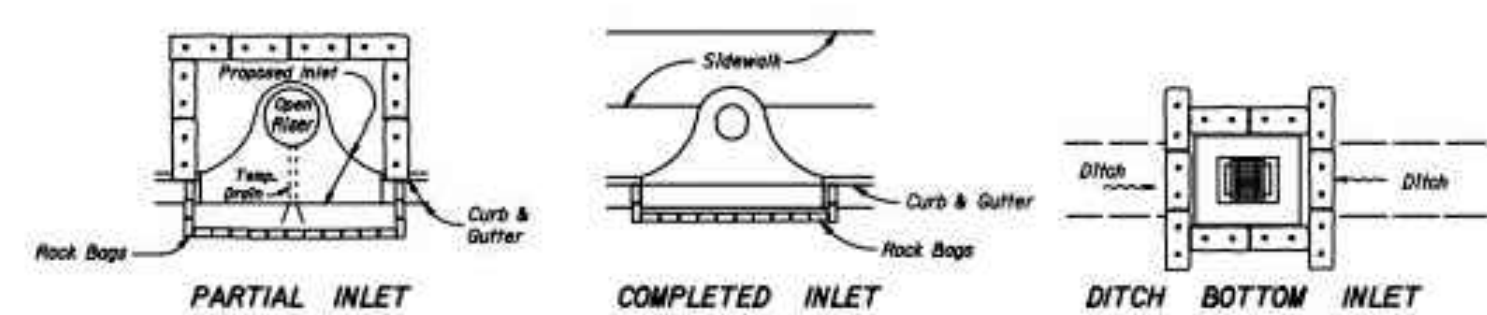
C. D. HAGAN, P.E.
FL REG. #38649
EB #29474

DATE: 09-20-14

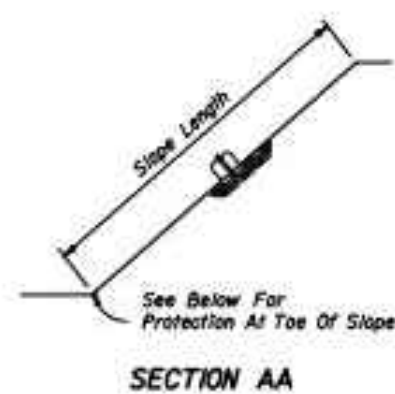
PROJECT NO. 2014-077

SCALE: As Shown

SHEET R-02

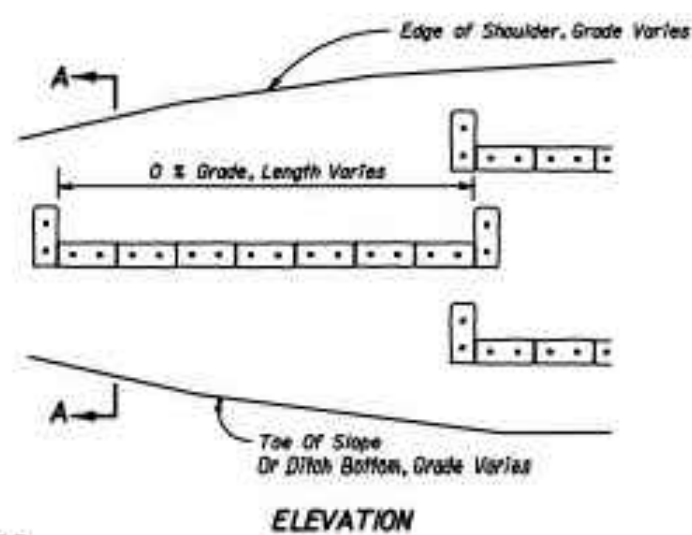


PROTECTION AROUND INLETS OR SIMILAR STRUCTURES

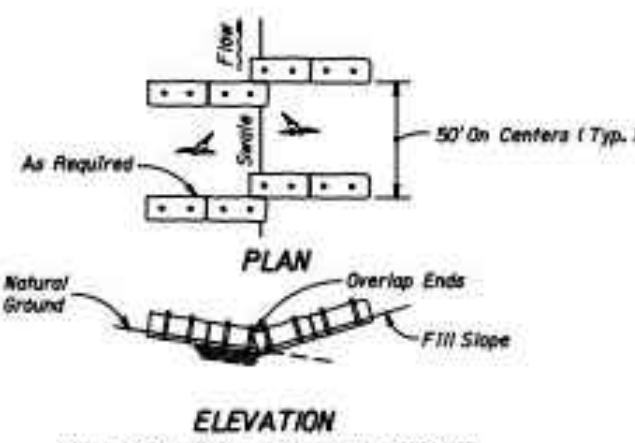


Note: Where the slope length exceeds 25 feet, construct one row of baled hay barriers at 1/2 length of slope midway up the slope. Construct two rows of baled hay barriers where the slope length exceeds 50 feet.

ALONG FILL SLOPE

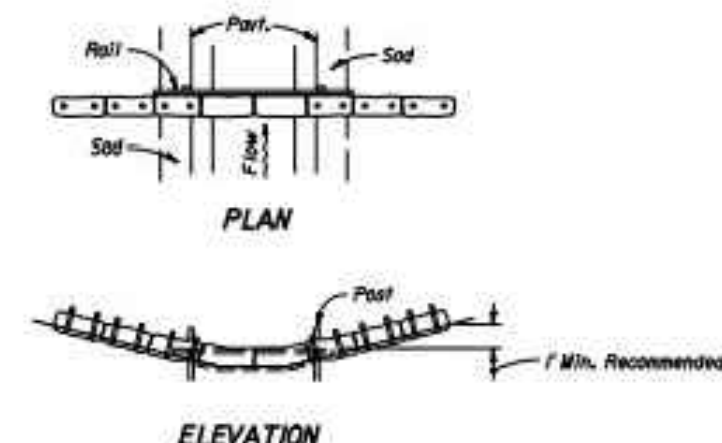


ELEVATION

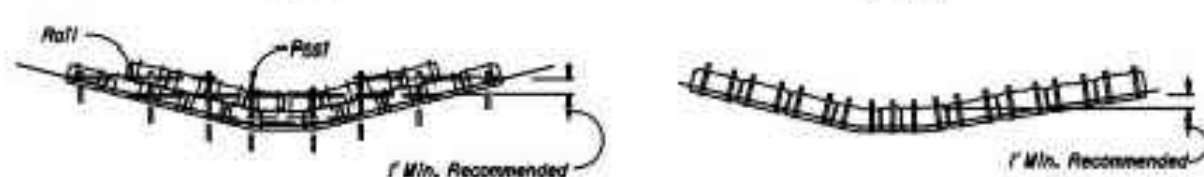
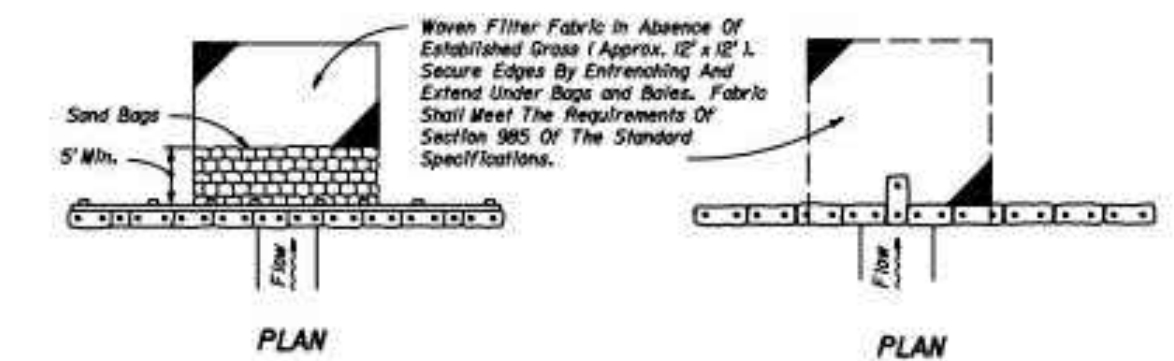


ELEVATION TO BE USED WHERE THE NATURAL GROUND SLOPES TOWARD THE TOE OF SLOPE

BARRIERS FOR FILL SLOPES



BARRIER FOR PAVED DITCH

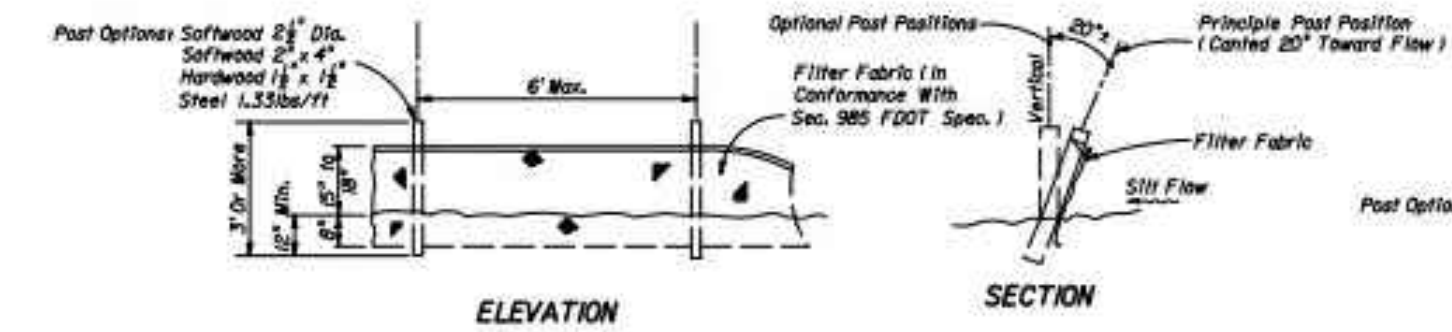


BARRIERS FOR UNPAVED DITCHES

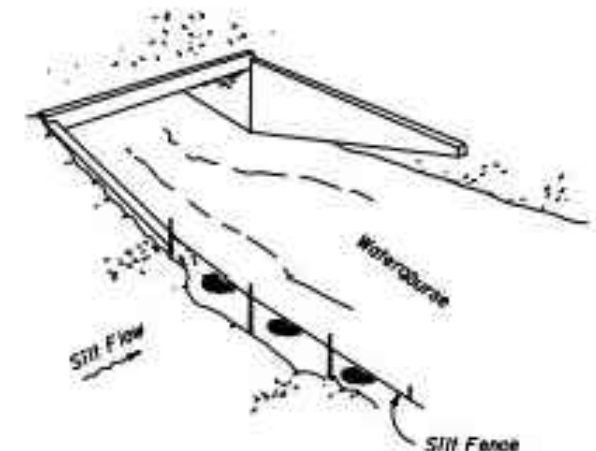
NOTES FOR BALED HAY OR STRAW BARRIERS

- Type I and II Barriers should be spaced in accordance with Chart 1, Sheet 1.
- Hay bales shall be trenched 3" to 4" and anchored with 2" x 2" (or 1" dia.) x 4" wood stakes. Stakes of other material or shape providing equivalent strength may be used if approved by the Engineer. Stakes other than wood shall be removed upon completion of the project.
- Rolls and posts shall be 2" x 4" wood. Other materials providing equivalent strength may be used if approved by the Engineer.
- Adjacent bales shall be butted firmly together. Unavoidable gaps shall be plugged with hay or straw to prevent silt from passing.
- Where used in conjunction with silt fence, hay bales shall be placed on the upstream side of the fence.
- Bales to be paid for under the contract unit price for Baled Hay or Straw, EA. The unit price shall include the cost of Filter Fabric for Type I and II Barriers. Sand bags shall be paid for under the unit price for Sandbagging, CY. Rock bags to be paid for under the contract unit price for Rock Bags, EA.

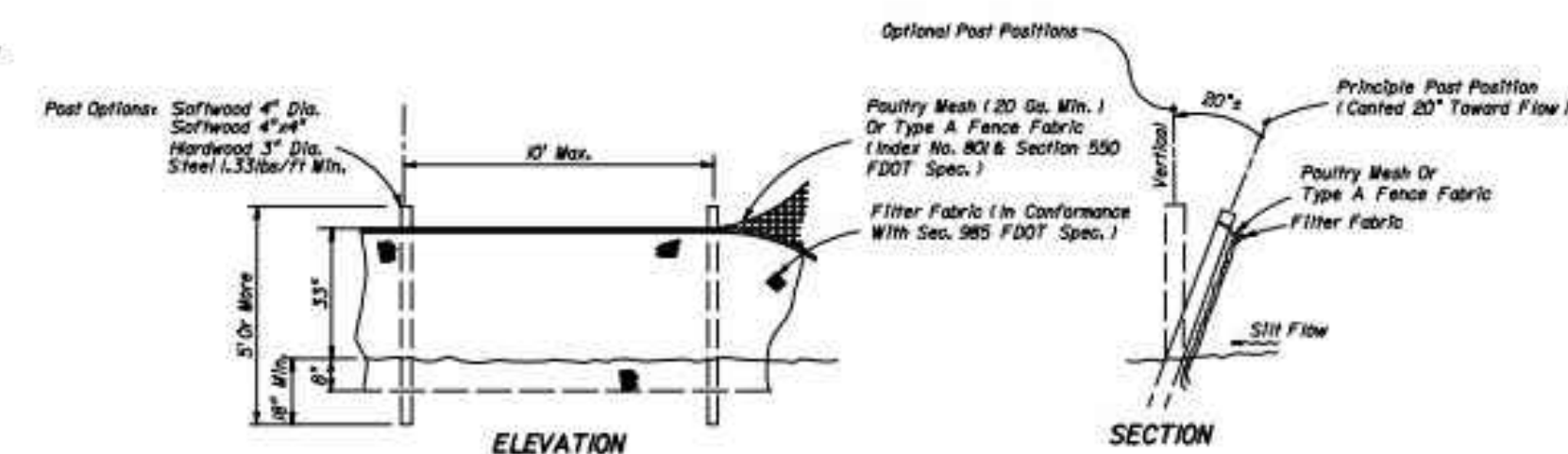
	2008 FDOT Design Standards	Last Revision 00	Sheet No. 2 of 3
	TEMPORARY EROSION AND SEDIMENT CONTROL		
	Index No. 102		



TYPE III SILT FENCE



SILT FENCE APPLICATIONS



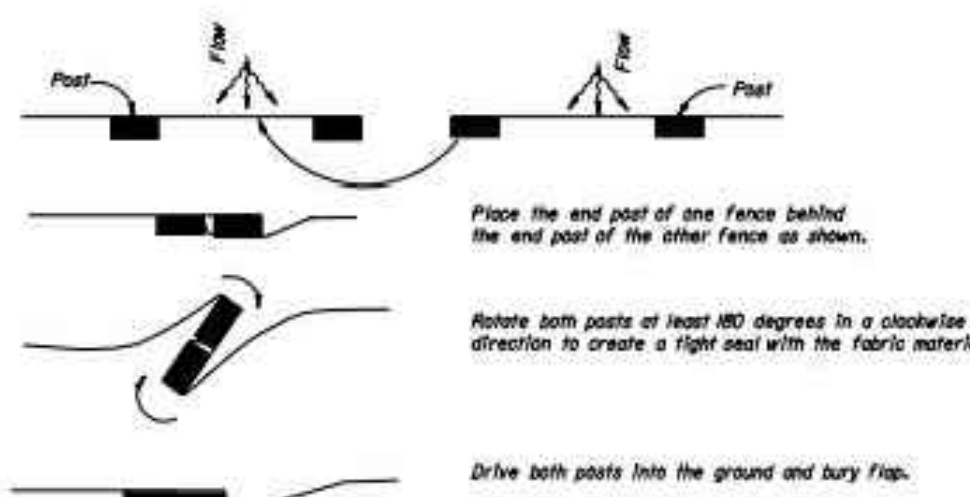
TYPE IV SILT FENCE



SILT FENCE APPLICATIONS

NOTES FOR SILT FENCES

- Type III Silt Fence to be used at most locations. Where used in ditches, the spacing for Type III Silt Fence shall be in accordance with Chart 1, Sheet 1.
- Type IV Silt Fence to be used where large sediment loads are anticipated. Suggested use is where fill slope is 1:2 or steeper and length of slope exceeds 25 feet. Avoid use where the detached water may back into travel lanes or off the right of way.
- Do not construct silt fences across permanent flowing watercourses. Silt fences are to be at upland locations and turbidity barriers used at permanent bodies of water.
- Where used as slope protection, Silt Fence is to be constructed on OK longitudinal grade to avoid channelizing runoff along the length of the fence.
- Silt Fence to be paid for under the contract unit price for Staked Silt Fence, (L.F.).



JOINING TWO SILT FENCES

	2008 FDOT Design Standards	Last Revision 07/01/05	Sheet No. 3 of 3
	TEMPORARY EROSION AND SEDIMENT CONTROL		
	Index No. 102		

REVISIONS	

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

HAGAN
ENGINEERING

1250 TAMiami TRAIL N., STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

PERMIT PLANS

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE: 09-20-14

FDOT DETAILS			
DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	R-03

RESTRAINT TABLE

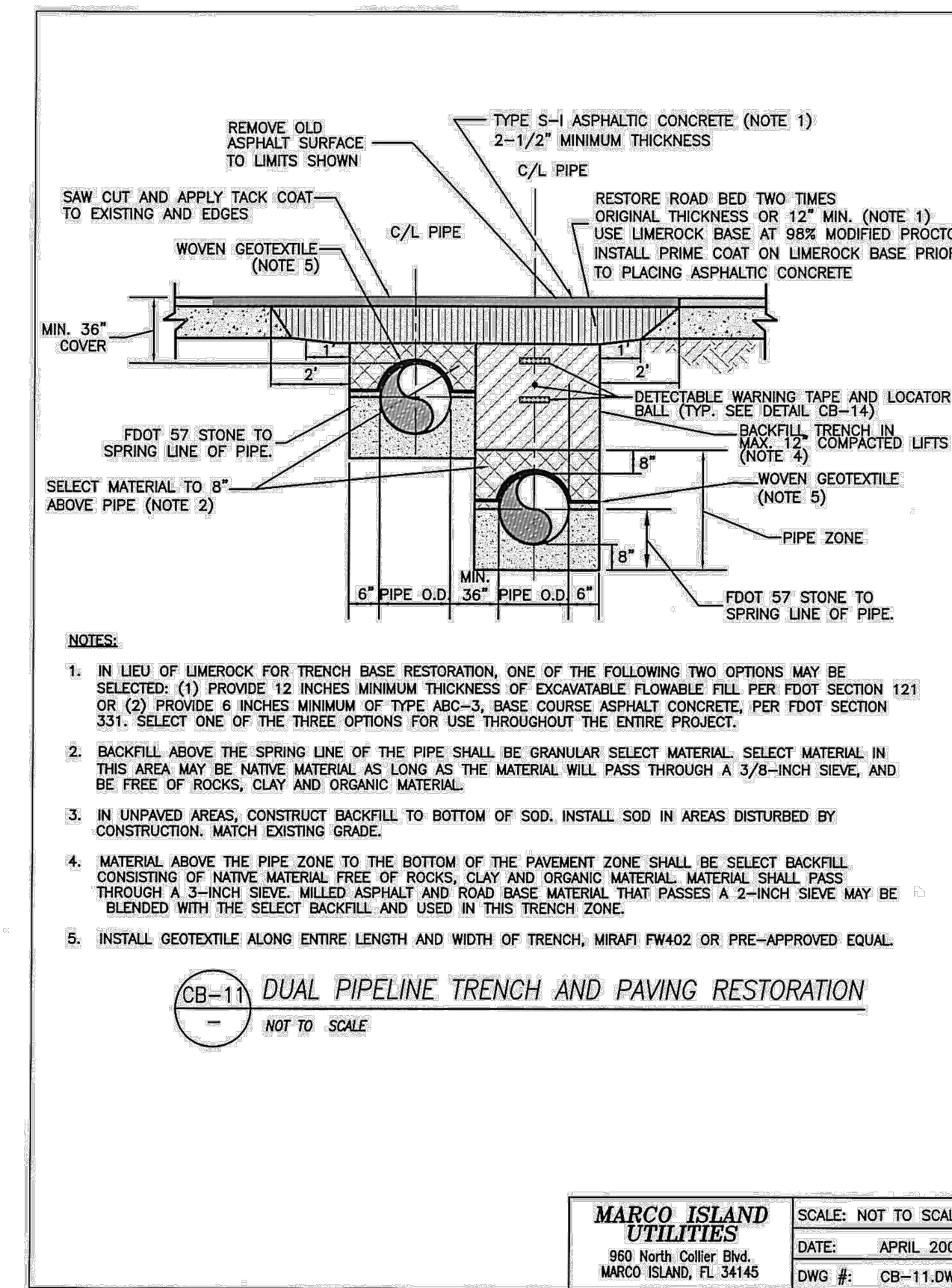
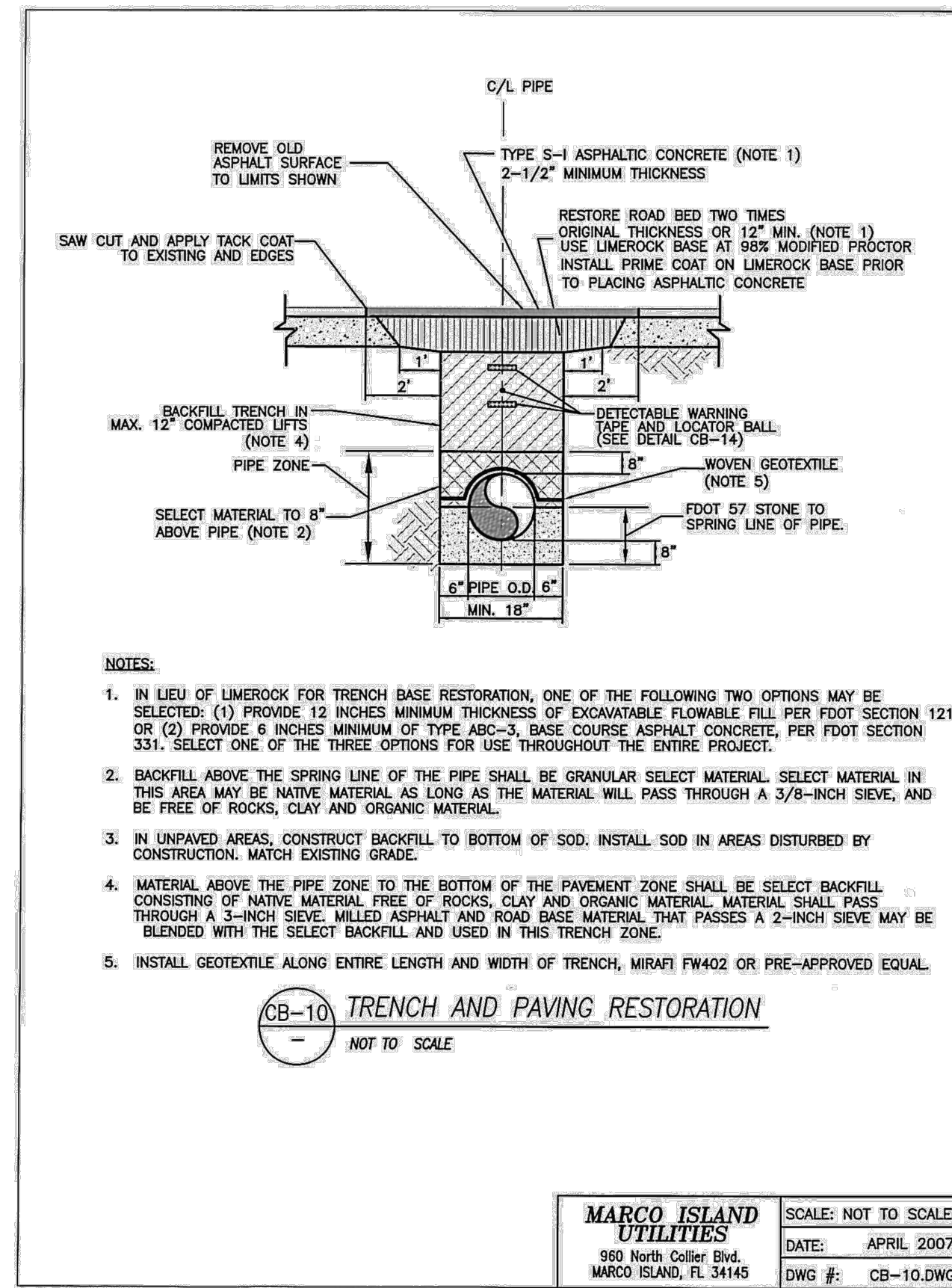
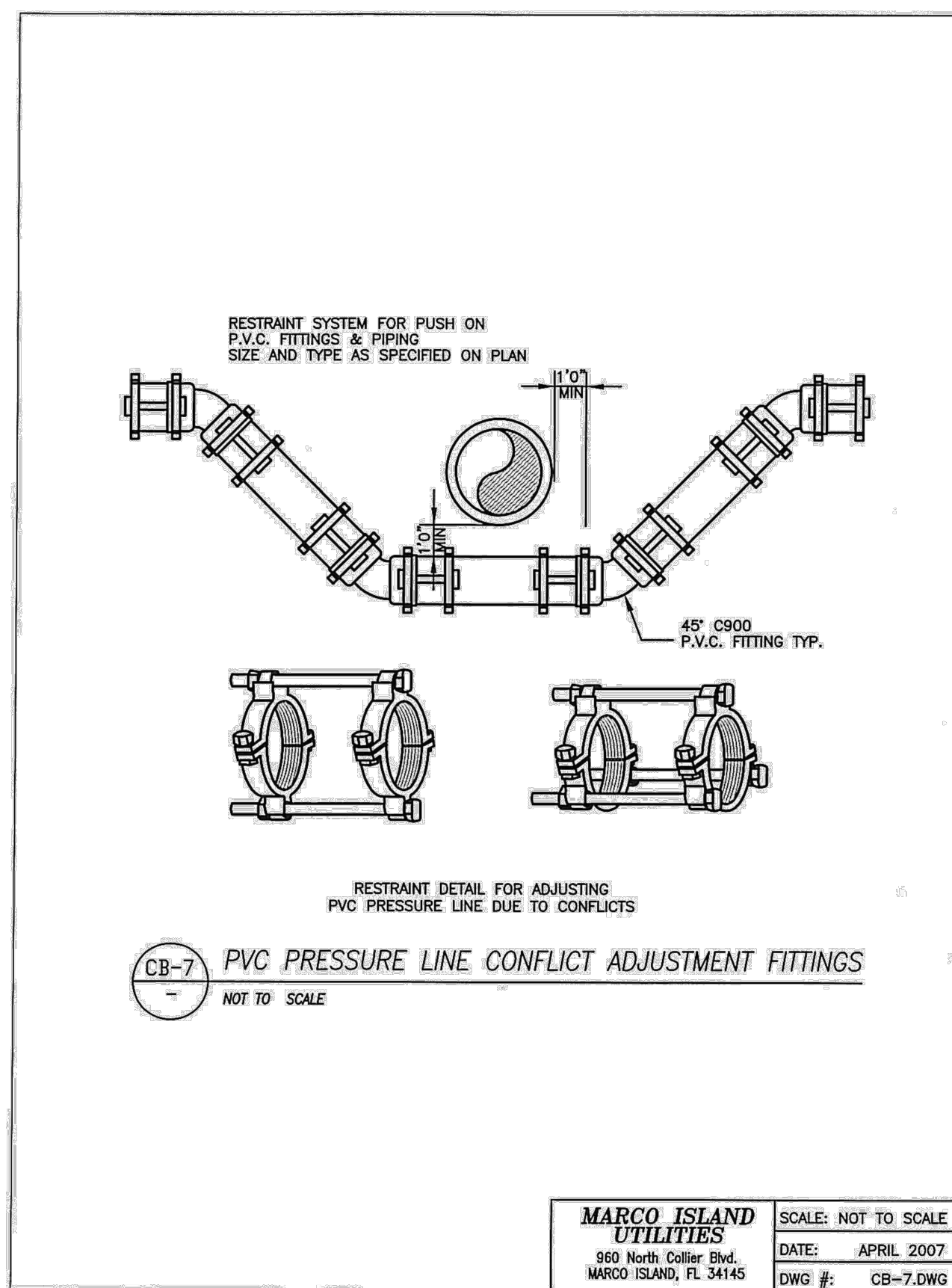
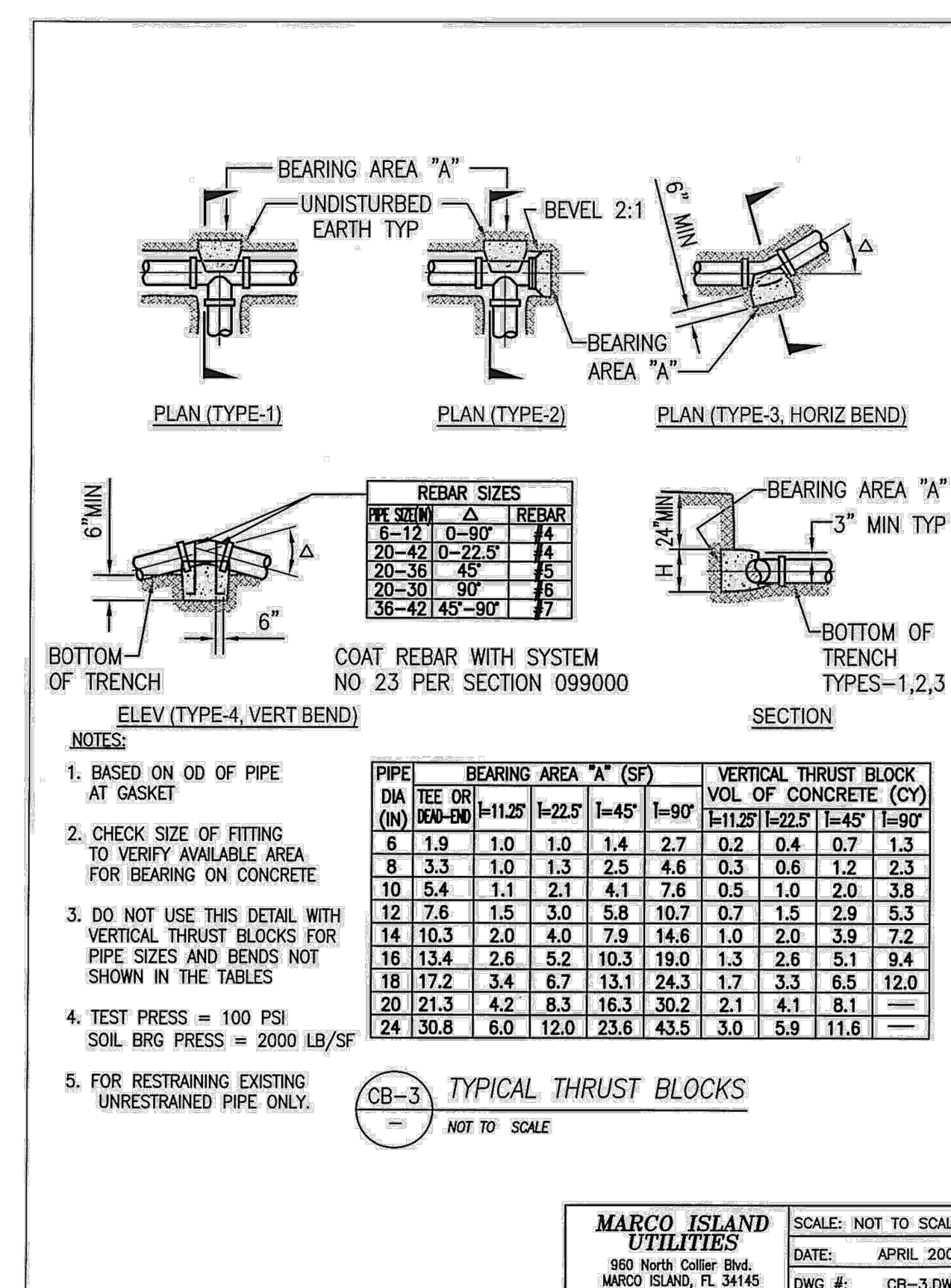
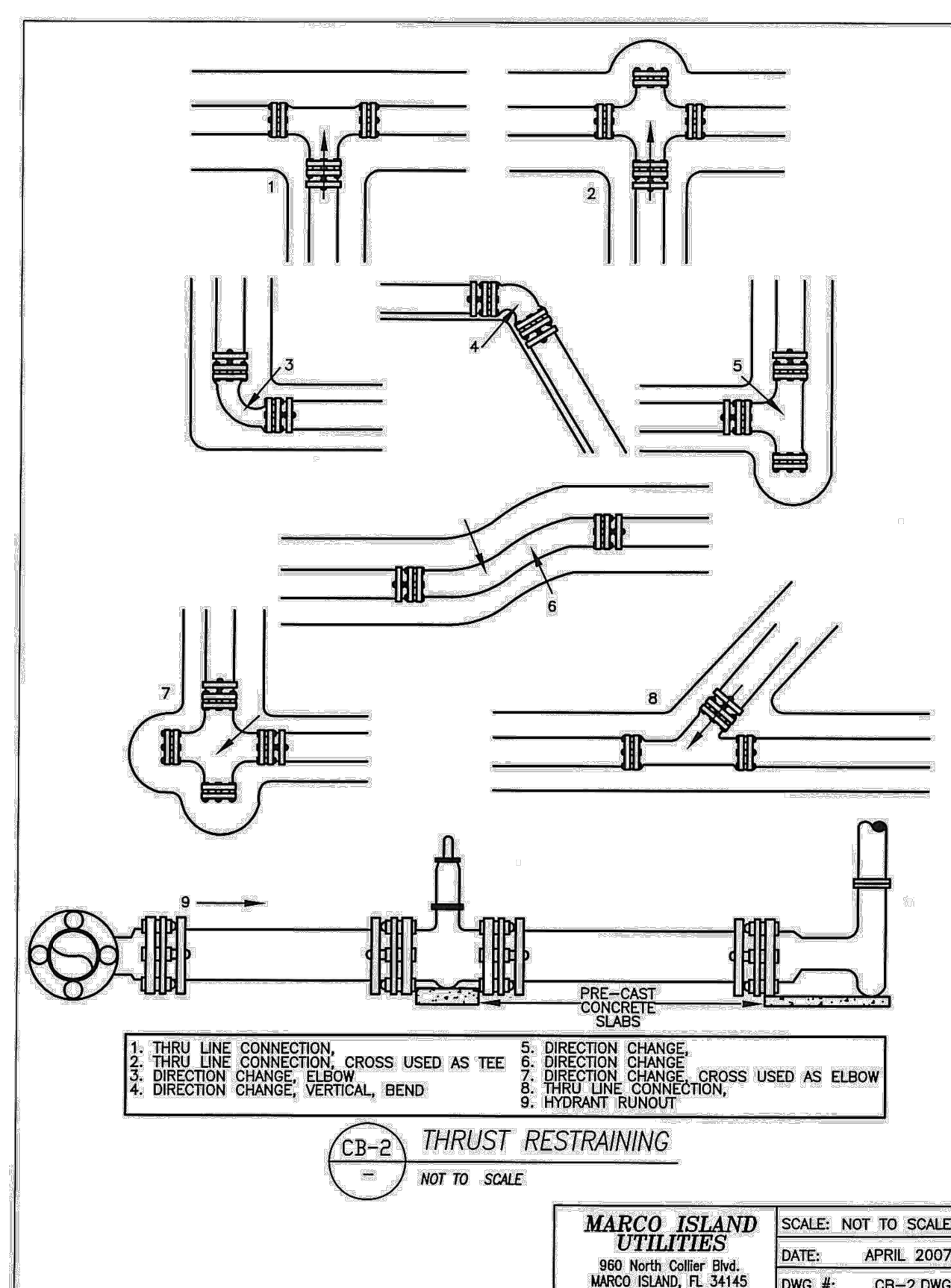
PIPE SIZE (IN.)	HORIZONTAL BENDS				VERTICAL OFFSETS				REDUCERS (SEE NOTES)				TEES			
	90° BENDS (Lr)	45° BENDS (Lr)	22.5° BENDS (Lr)	11.25° BENDS (Lr)	45° BENDS (Lr)	22.5° BENDS (Lr)	11.25° BENDS (Lr)	5.625° BENDS (Lr)	SIZE (IN.)	REDUCER SIZE (IN.)	BRANCH (Lr)	TEE (Lr)	SIZE (IN.)	REDUCER SIZE (IN.)	BRANCH (Lr)	TEE (Lr)
4"	27	11	5	3	31	8	8	60	6 x 4	64	43	4"	4"	4"	10	11
6"	37	15	7	4	43	11	84	8 x 6	60	46	6"	4"	6"	10	34	11
8"	48	20	10	5	57	15	110	8 x 4	153	79	8"	4"	8"	10	59	11
10"	57	24	11	6	68	17	131	10 x 8	55	44	10"	4"	10"	10	89	11
12"	57	24	11	6	68	19	131	10 x 6	133	81	12"	4"	10"	10	89	11
16"	58	24	12	6	55	19	106	12 x 8	104	69	10"	6"	10"	10	89	11
20"	70	29	14	7	67	23	129	16 x 12	61	45	10"	8"	10"	10	89	11
24"	81	33	16	8	78	27	150	20 x 10	103	63	12"	8"	10"	10	89	11
								20 x 16	58	45	10"	10"	10"	10	89	11
								24 x 16	128	82	16"	10"	10"	10	89	11
								24 x 16	128	82	20"	10"	10"	10	89	11
								24 x 16	128	82	24"	10"	10"	10	89	11

NOTES:

- LENGTHS SHOWN ON THIS TABLE ARE TO BE INTERPRETED AS FOLLOWS:
 Lhs = RESTRAINED LENGTH FROM HIGH SIDE FITTING OF A VERT. BEND
 Lls = RESTRAINED LENGTH FROM LOW SIDE FITTING OF A VERT. BEND
 Lr = RESTRAINED LENGTH ON BOTH SIDES FROM FITTING
 Lm = MINIMUM LENGTH TO FIRST JOINT OF RUN ON BOTH SIDES
 Lbr = RESTRAINED LENGTH REQUIRED ON BRANCH FROM FITTING
 L(A) = LENGTH OF PIPE ON SMALL SIDE FREE OF FITTING
 L(B) = RESTRAINED LENGTH ON LARGE SIDE OF REDUCER
- A SAFETY FACTOR = 2.5 IS USED FOR VERTICAL OFFSETS TO COMPENSATE FOR SATURATED SOIL CONDITIONS. A SAFETY FACTOR = 2.0 IS USED FOR ALL OTHER CASES.
- L(A) AND L(B) ABOVE ARE TWO OPTIONS FOR PROVIDING THE REQUIRED THRUST RESTRAINT FOR THE FITTING. EITHER L(A) LENGTH OF PIPE FREE OF FITTINGS (BENDS, TEES, REDUCERS OR VALVES) ON THE SMALL SIDE OF THE REDUCER WILL PROVIDE THE REQUIRED RESTRAINT OR L(B) LENGTH CAN BE RESTRAINED ON THE LARGE SIDE OF THE FITTING.
- THE FOLLOWING ARE ASSUMED:
 4" - 10" PIPE HAS 30" MIN. COVER
 12" - 24" PIPE HAS 36" MIN. COVER
 4" - 24" PIPE IS PVC
- VALVES SHALL BE RESTRAINED ON EITHER SIDE OF THE FITTING AS A MINIMUM. IN LINE VALVES SHALL HAVE NO FITTINGS WITHIN THE LENGTHS SHOWN ON THIS TABLE FOR THE SAME SIZE DEAD END. IN CASES WHERE THIS LENGTH CAN NOT BE PROVIDED FREE OF FITTINGS, ADDITIONAL RESTRAINT SHALL BE REQUIRED AS APPROVED BY ENGINEER.
- ALL DEAD END LINES, PERMANENT OR TEMPORARY, SHALL BE RESTRAINED PER THE ABOVE RESTRAINT TABLE.

CB-1 RESTRAINT TABLE
NOT TO SCALE

MARCO ISLAND UTILITIES
980 North Collier Blvd.
MARCO ISLAND, FL 34145
SCALE: NOT TO SCALE
DATE: APRIL 2007
DWG #: CB-1.DWG



REVISIONS	DATE	DESCRIPTION

**ROSE MARINA
REDEVELOPMENT PLANS**

**CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA**

**HAGAN
ENGINEERING**

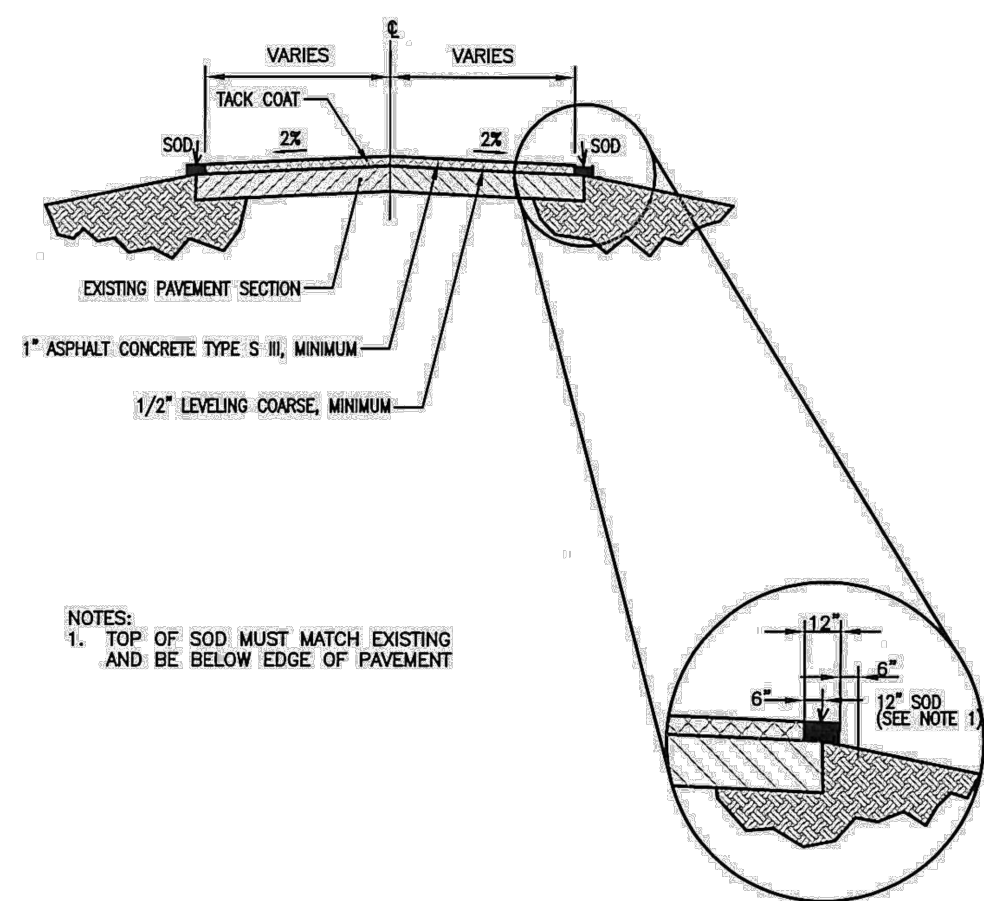
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Naples, Florida 34102
Phone (239) 851-8239

PERMIT PLANS

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE: 09-20-14

UTILITY DETAILS

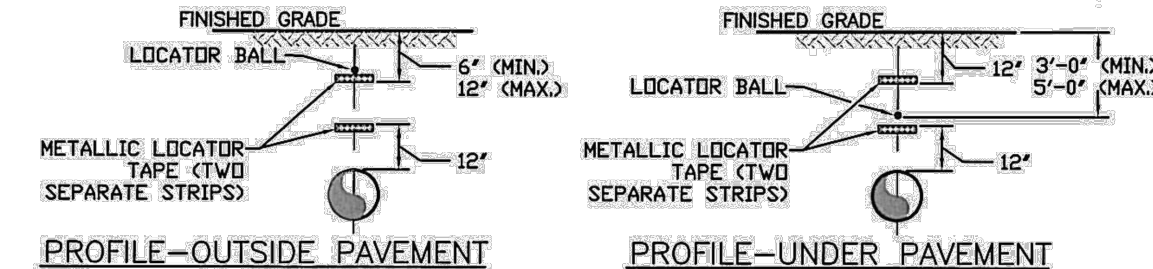
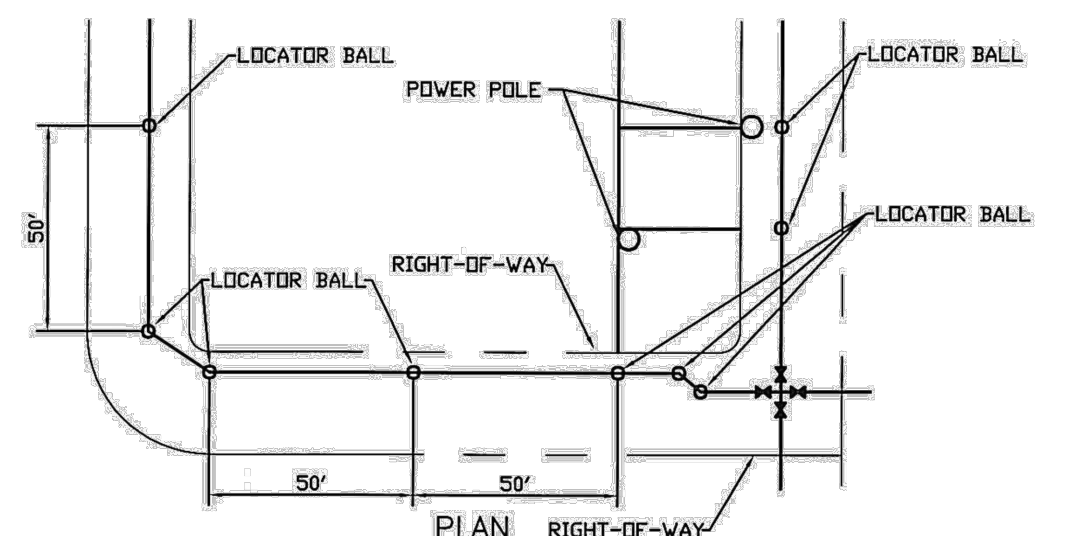
DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	U-01



NOTES:
1. TOP OF SOD MUST MATCH EXISTING AND BE BELOW EDGE OF PAVEMENT

CB-13 ASPHALT OVERLAY
NOT TO SCALE

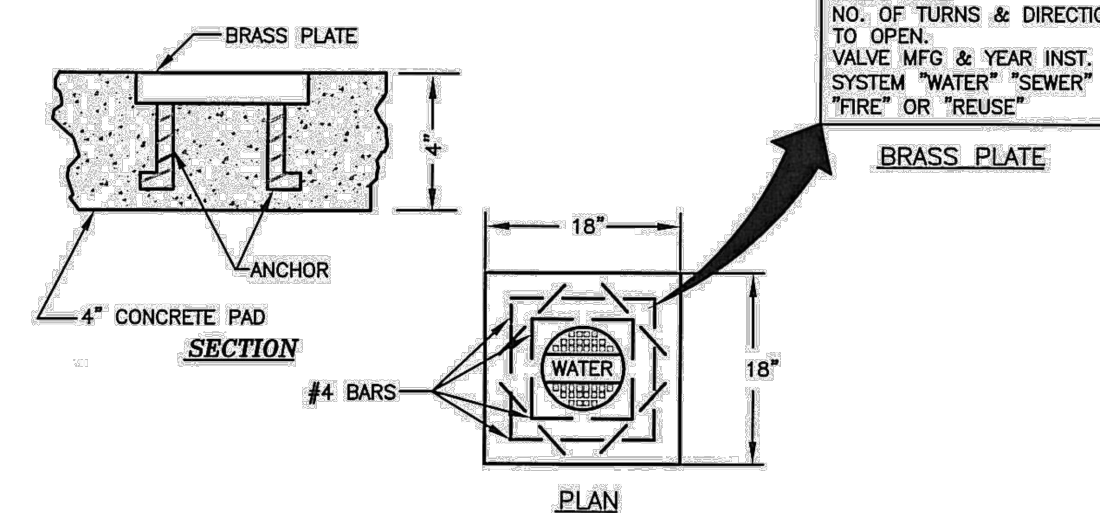
MARCO ISLAND UTILITIES
980 North Collier Blvd.
MARCO ISLAND, FL 34145
SCALE: NOT TO SCALE
DATE: APRIL 2007
DWG #: CB-13.DWG



NOTES:
1. LOCATOR MARKERS ARE TO BE 4" BALL MARKER AS MANUFACTURED BY 3M, MODEL 1423-XR/10 FOR WATER (BLUE), 1424-XR/10 FOR WASTEWATER (GREEN) AND 1424-XR/10 FOR REUSE WATER (PINK).
2. PRESSURE MAINS CROSSING ROAD: LOCATE BALLS TO BE PLACED NO MORE THAN 2'-0" FROM OUTSIDE EDGE OF PAVEMENT.
3. MARKERS ARE TO BE INSTALLED AT ALL CHANGE OF DIRECTIONS AND FITTINGS ABSENT OF ANY VALVE. ON STRAIGHT RUNS, MARKERS ARE TO BE INSTALLED EVERY 50'.
4. PROVIDE CONSTRUCTION RECORD DRAWINGS SHOWING THE LOCATION OF PRESSURE MAIN LOCATOR BALLS AND THE BAR CODE FOR EACH BALL.
5. SEE DETAILS SS-20 THROUGH SS-23 FOR LOCATOR TAPE AND BALL MARKERS FOR GRAVITY SEWER MAINS AND LATERALS.
6. METALLIC LOCATOR TAPE IS REQUIRED ABOVE GRAVITY SEWER MAINS. LOCATOR BALLS ARE NOT REQUIRED ABOVE GRAVITY SEWER MAINS.

CB-14 LOCATOR TAPE AND BALL MARKERS FOR PRESSURE MAINS
NOT TO SCALE

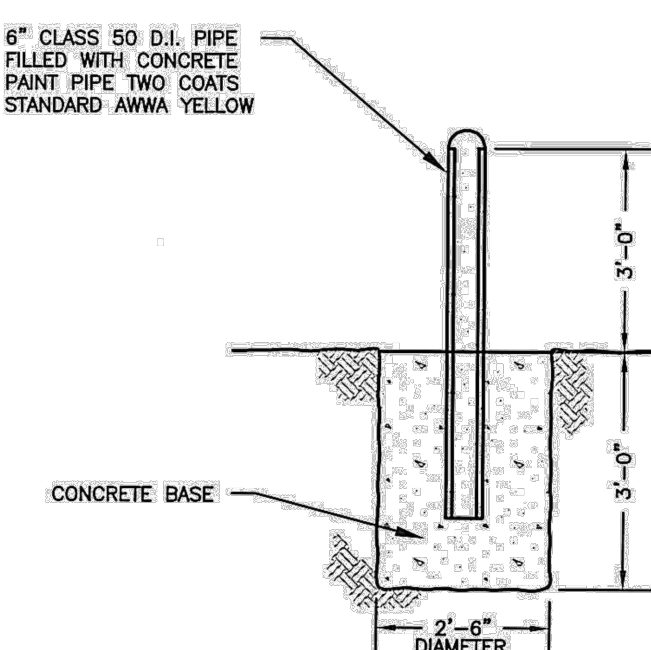
MARCO ISLAND UTILITIES
980 North Collier Blvd.
MARCO ISLAND, FL 34145
SCALE: NOT TO SCALE
DATE: APRIL 2007
DWG #: CB-14.DWG



NOTES:
1. ALL VALVE BOX LIDS IN TRAFFIC AREAS ARE TO BE TYLER PIPE LOCKLID OR MIU APPROVED EQUAL.

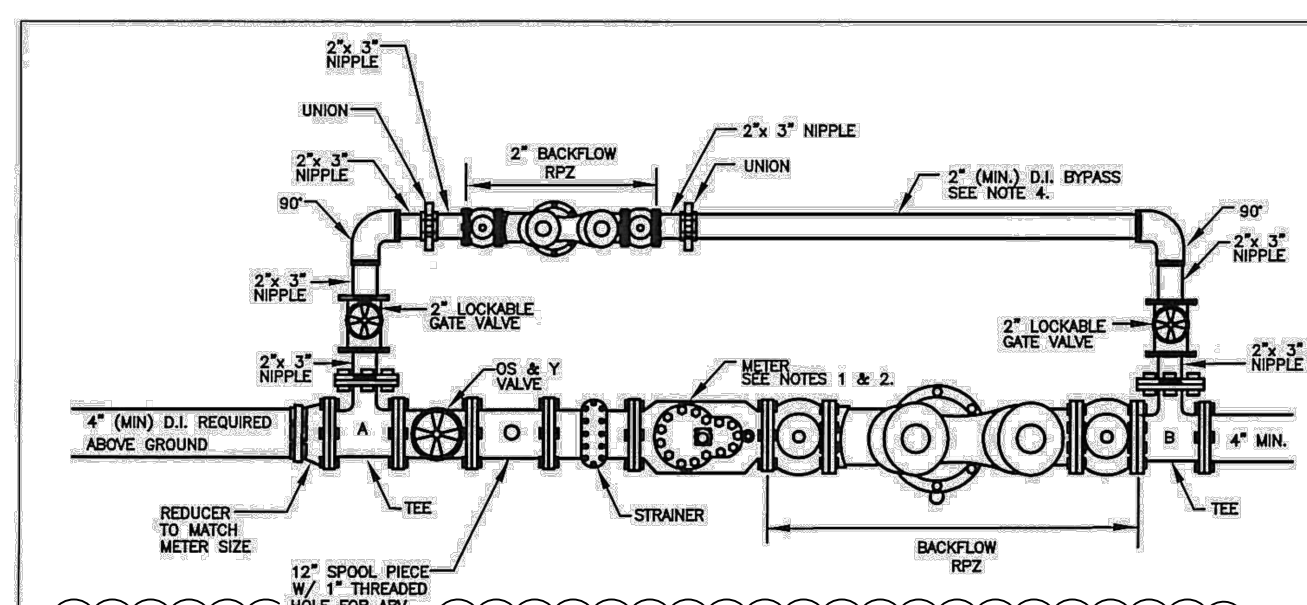
CB-16 VALVE PAD
NOT TO SCALE

MARCO ISLAND UTILITIES
980 North Collier Blvd.
MARCO ISLAND, FL 34145
SCALE: NOT TO SCALE
DATE: APRIL 2007
DWG #: CB-16.DWG



CB-17 GUARD POST
NOT TO SCALE

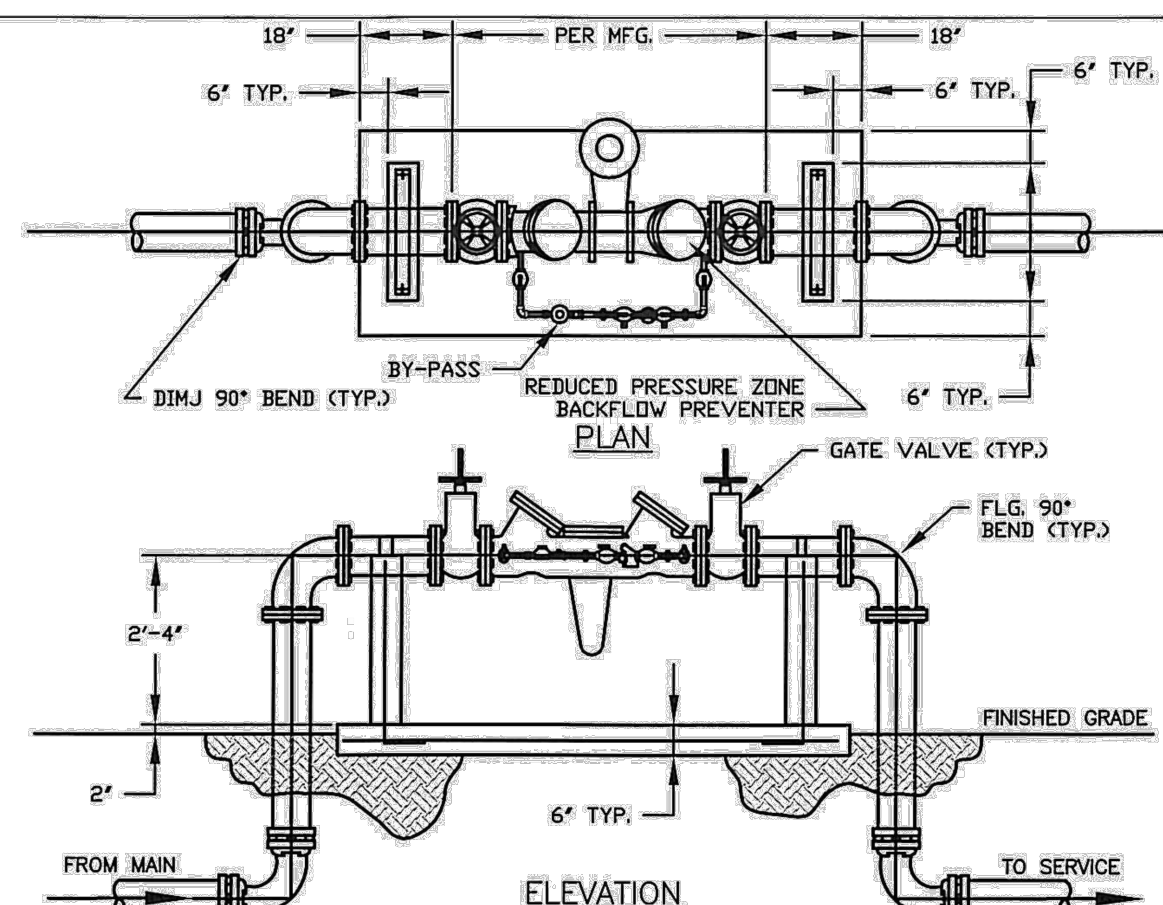
MARCO ISLAND UTILITIES
980 North Collier Blvd.
MARCO ISLAND, FL 34145
SCALE: NOT TO SCALE
DATE: APRIL 2007
DWG #: CB-17.DWG



NOTES:
1. METER SIZE DETERMINES CONFIGURATION SIZE BETWEEN TEE "A" & "B".
2. METER WILL BE SENSUS OMNI C-2 COMPOUND READING IN GALLONS WITH 6-DIGITS.
3. ENTIRE APPARATUS TO BE PAINTED WITH UV RATED PAINT, (EXCEPT METER), RED FOR FIRE SERVICE AND BLUE FOR POTABLE SERVICE.
4. BYPASS TO BE A MAXIMUM OF ONE PIPE DIAMETER SMALLER THAN MAIN LINE.
5. NO. 1 VALVE ON MAIN LINE TO BE CHAIN LOCKED IN OPEN POSITION THROUGH YOKE AND HANDWHEEL. NO. 1 VALVE ON BYPASS TO BE CHAIN LOCKED IN CLOSED POSITION THROUGH YOKE AND HANDWHEEL. LOCKS TO BE FURNISHED BY MIU.
6. SUPPORTS TO BE 316 SS, ADJUSTABLE.
7. ALL ABOVE GRADE GATE VALVES SHALL BE RESILIENT SEAT, HAND WHEEL, OUTSIDE STEM & YOKE (OS&Y) TYPE.

BF-1 STANDARD METER BACKFLOW ASSEMBLY
NOT TO SCALE

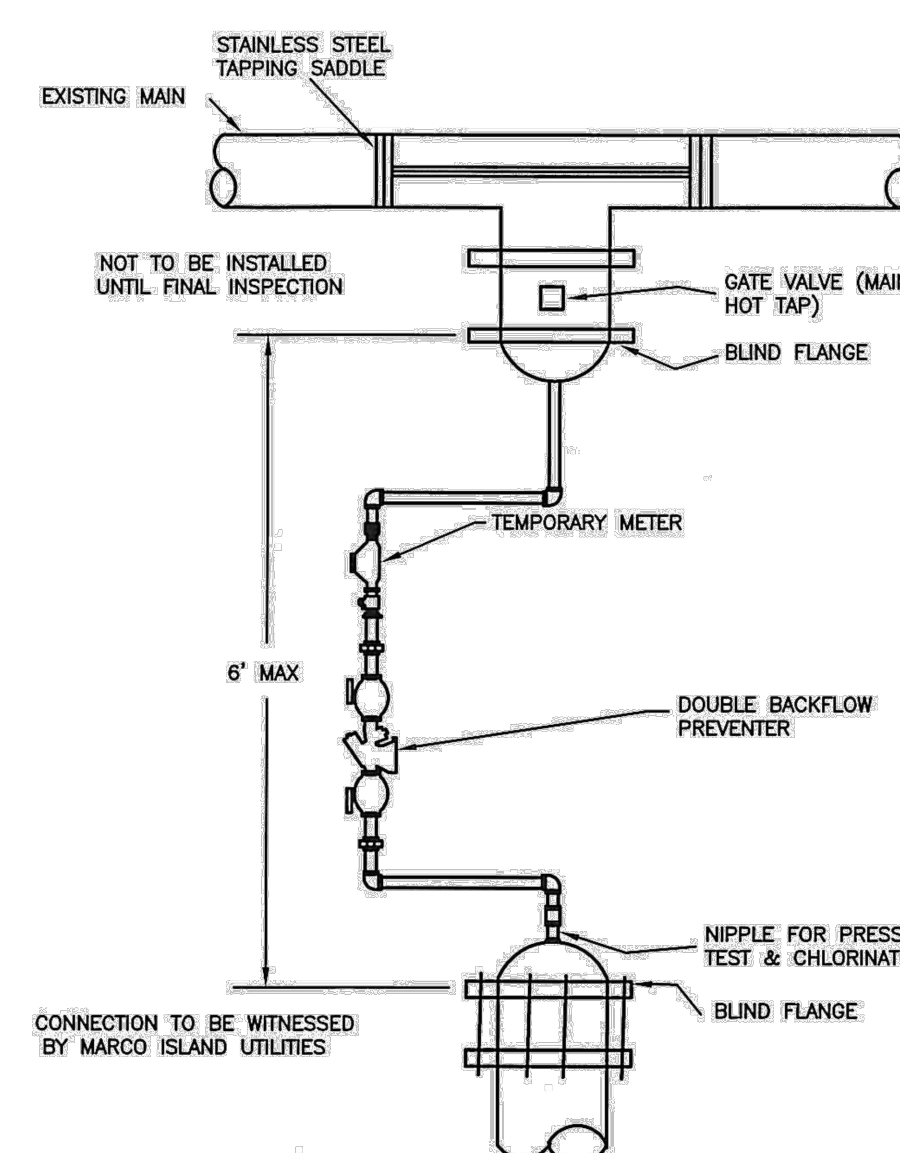
MARCO ISLAND UTILITIES
980 North Collier Blvd.
MARCO ISLAND, FL 34145
SCALE: NOT TO SCALE
DATE: APRIL 2007
DWG #: BF-1.DWG



NOTE:
1. ALL ABOVE GRADE GATE VALVES SHALL BE RESILIENT SEAT, HAND WHEEL, OUTSIDE STEM & YOKE (OS&Y) TYPE.
2. ALL ABOVE GRADE PIPING 3 INCHES IN DIA. & LARGER SHALL BE DUCTILE IRON WITH FLANGED ENDS, CLASS 53. ALL BELOW GRADE PIPING SHALL BE DIMJ W/ RESTRAINING TYPE DEVICES, MEGA-LUG OR APPROVED EQUAL. PIPING SMALLER THAN 3 INCHES SHALL BE BRASS.
3. ALL ASSEMBLIES SHALL BE 30 INCHES ABOVE FINISHED GRADE LEVEL, AND HAVE A 6" (MINIMUM) THICK CONCRETE SLAB REINFORCED W/ #5 @ 12" E.W. THE OVERALL SLAB DIMENSIONS SHALL BE DETERMINED BY THE ASSEMBLY SIZE.
4. BY-PASS DETECTOR METER WILL BE SENSUS OMNI C-2 WATER METER WITH TOUCH READ REGISTER, IN GALLONS AND WILL READ IN 6-DIGITS.
5. DEPENDING ON LOCATION, A FENCE MAY BE REQUIRED AROUND ASSEMBLY FOR SAFETY.
6. FIRE MAIN SHALL BE IN ADDITION TO CUSTOMER SERVICE/SUPPLY MAIN.
7. OWNER SHALL TEST ASSEMBLY AND SUBMIT TEST REPORTS TO MIU ANNUALLY.
8. SUPPORTS TO BE 316 SS, ADJUSTABLE.
9. NO. 1 VALVE ON MAIN LINE TO BE CHAIN LOCKED IN OPEN POSITION THROUGH YOKE AND HANDWHEEL. NO. 1 VALVE ON BYPASS TO BE CHAIN LOCKED IN CLOSED POSITION THROUGH YOKE AND HANDWHEEL. LOCKS TO BE FURNISHED BY MIU.
10. ENTIRE APPARATUS TO BE PAINTED WITH RED UV RATED PAINT. (EXCEPT METER).

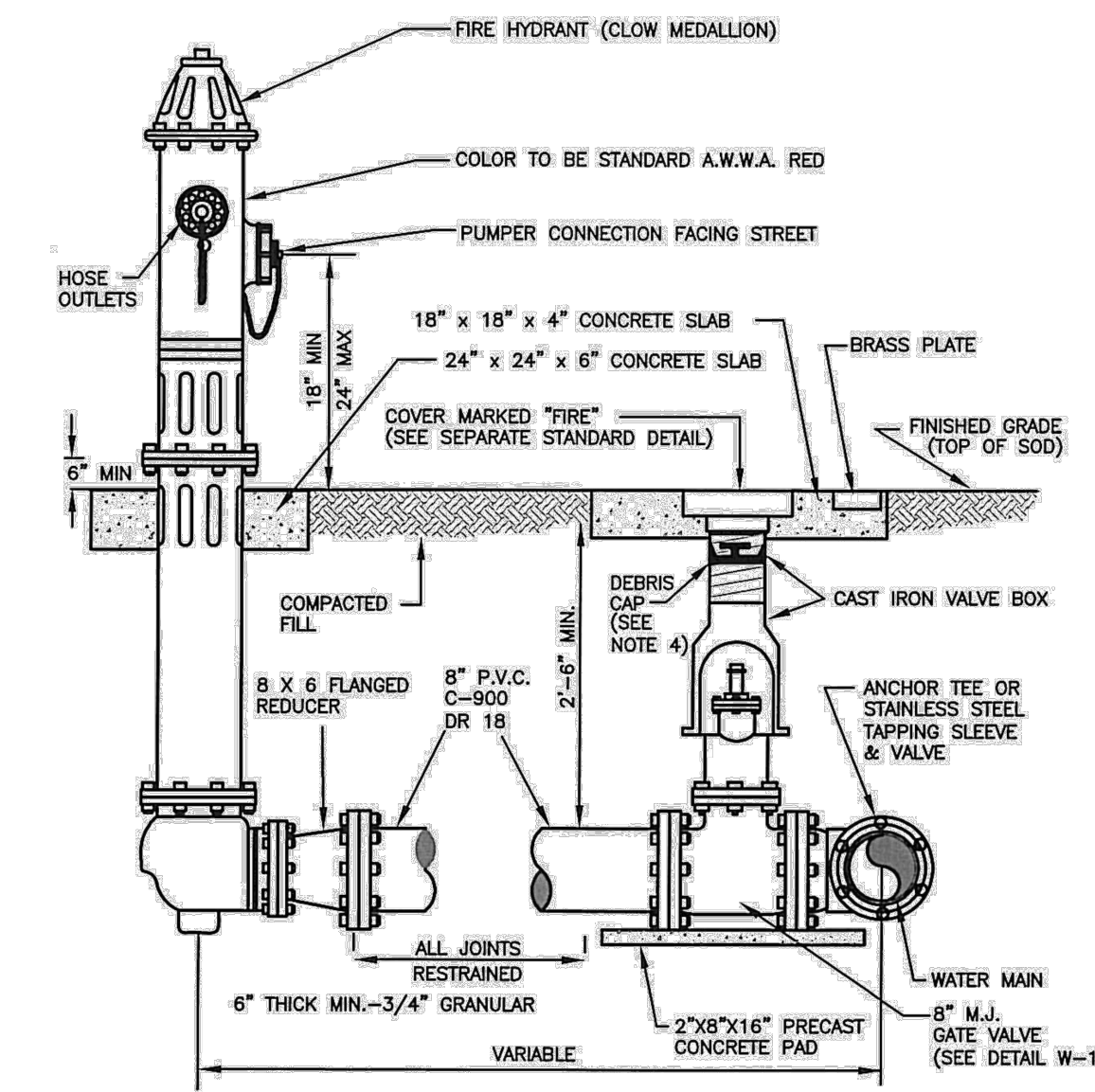
BF-4 DEDICATED FIRE FLOW BACKFLOW ASSEMBLY
NOT TO SCALE

MARCO ISLAND UTILITIES
980 N. COLLIER BLVD.
MARCO ISLAND, FL 34145
SCALE: NOT TO SCALE
DATE: APRIL 2007
DWG #: BF-4.DWG



W-1 CONSTRUCTION JUMPER ASSEMBLY (OPTIONAL)
NOT TO SCALE

MARCO ISLAND UTILITIES
980 North Collier Blvd.
MARCO ISLAND, FL 34145
SCALE: NOT TO SCALE
DATE: APRIL 2007
DWG #: W-1.DWG



NOTES:
1. IF EXISTING WATER MAIN IS 10-INCHES OR LARGER, DRAFT TUBE ASSEMBLY AND TEE MUST BE A MINIMUM OF 8-INCH REDUCING TO 6-INCH FOR HYDRANT CONNECTION AS SHOWN.
2. IF EXISTING MAIN IS 8 TO 6 INCHES IN DIAMETER, DRAFT TUBE ASSEMBLY AND TEE IS REQUIRED TO BE 6 INCHES MINIMUM.
3. ALL BURIED DUCTILE IRON FITTINGS AND VALVES TO BE POLYETHYLENE ENCASED IN ACCORDANCE WITH MIU STANDARD SPECIFICATIONS.
4. CAST IRON VALVE RISER MUST BE ADJUSTED TO ACCEPT DEBRIS CAP.
5. HYDRANT TO BE PAINTED SAFETY YELLOW IF OWNED BY MIU. PRIVATELY OWNED WILL BE SAFETY RED.

W-2 FIRE HYDRANT ASSEMBLY
NOT TO SCALE

MARCO ISLAND UTILITIES
980 North Collier Blvd.
MARCO ISLAND, FL 34145
SCALE: NOT TO SCALE
DATE: APRIL 2007
DWG #: W-2.DWG

REVISIONS

ROSE MARINA
REDEVELOPMENT PLANS

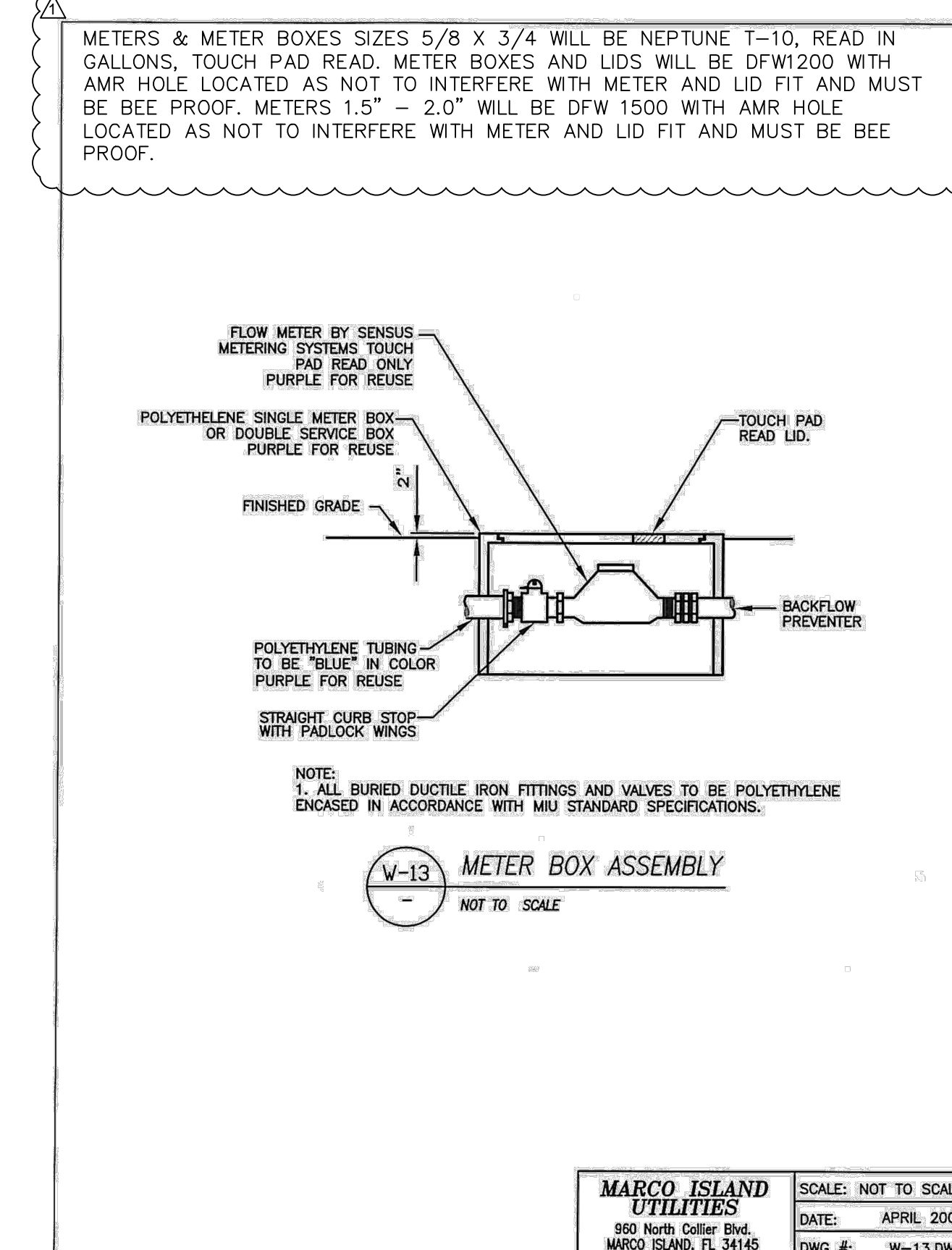
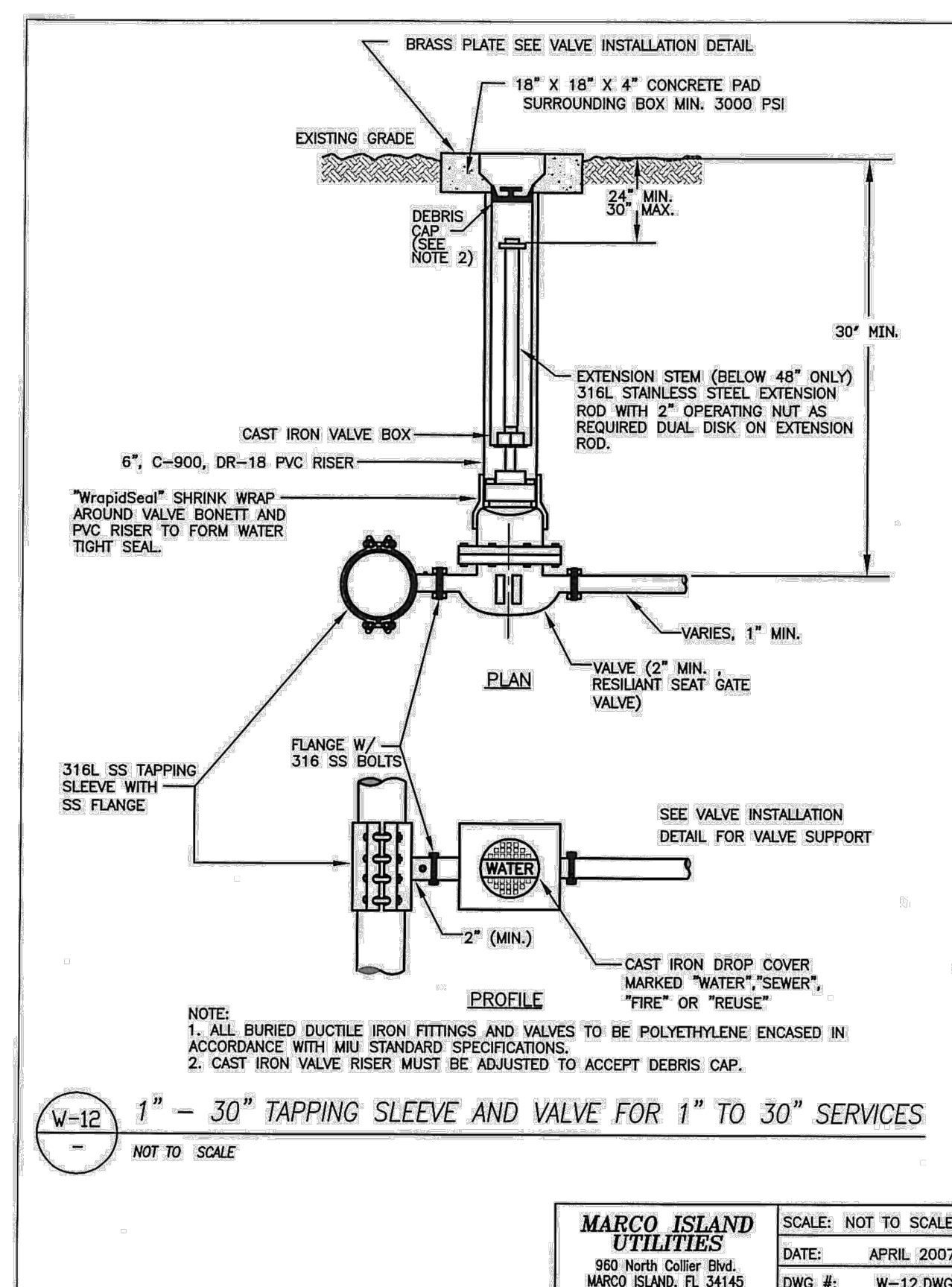
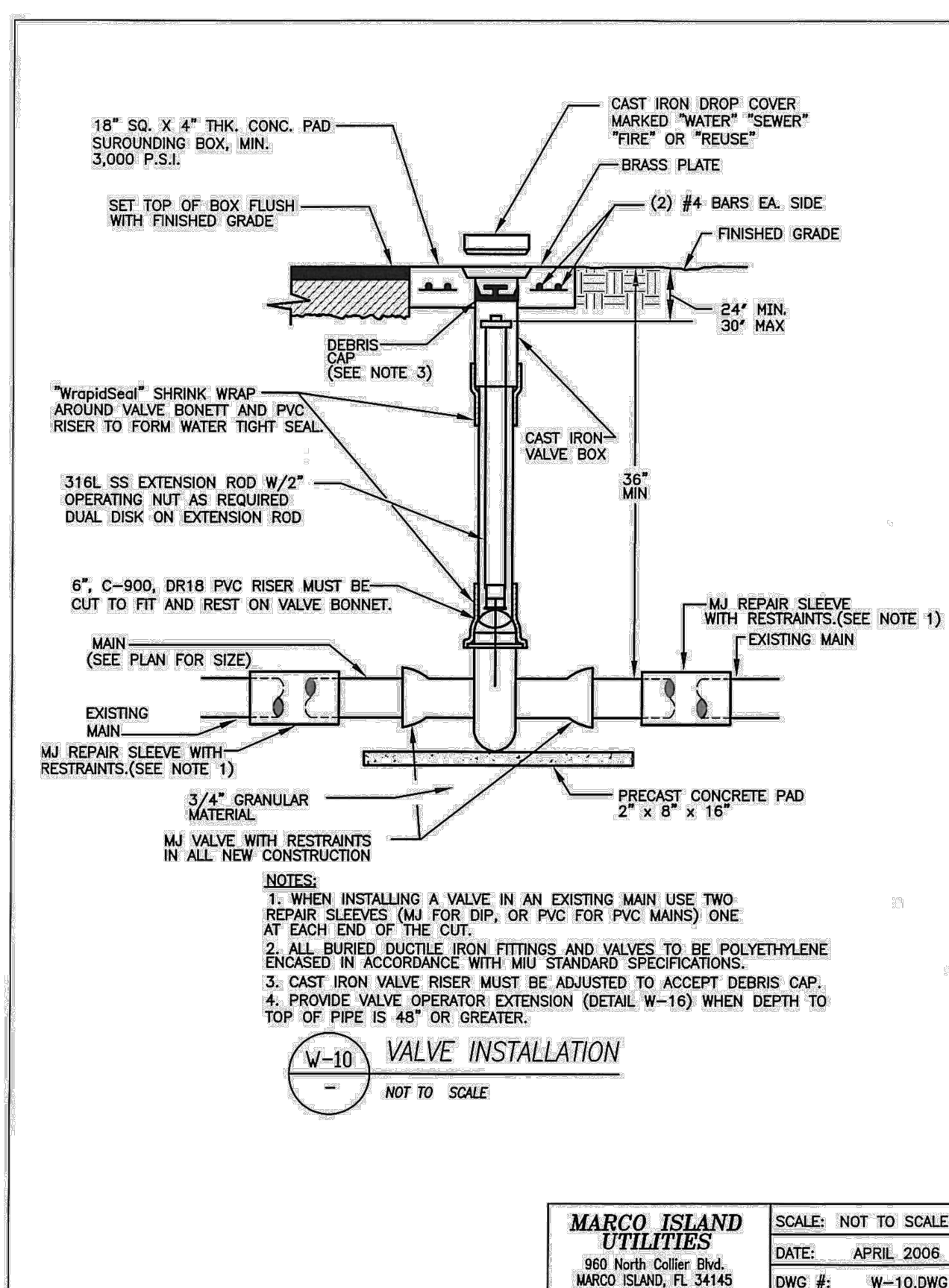
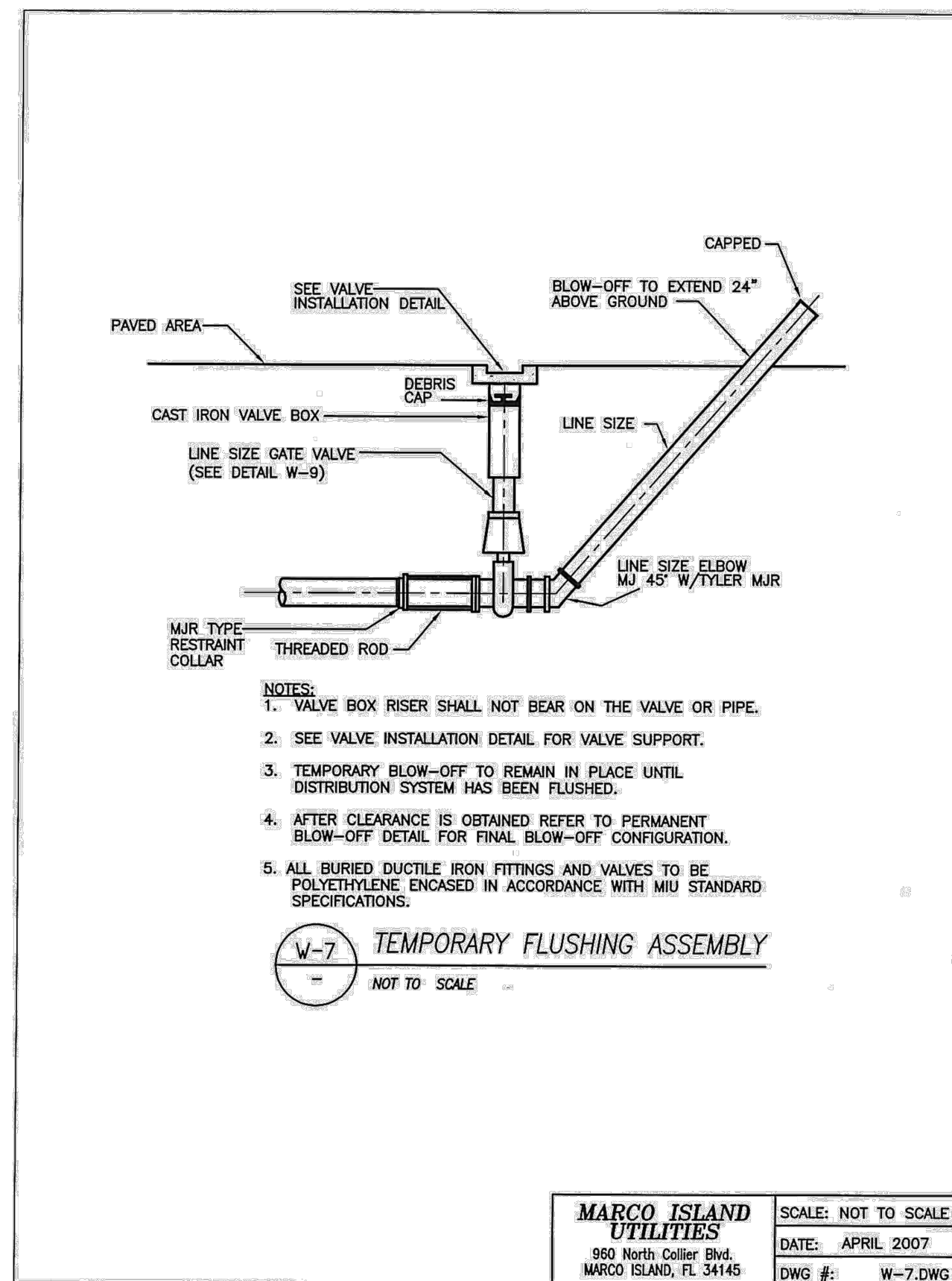
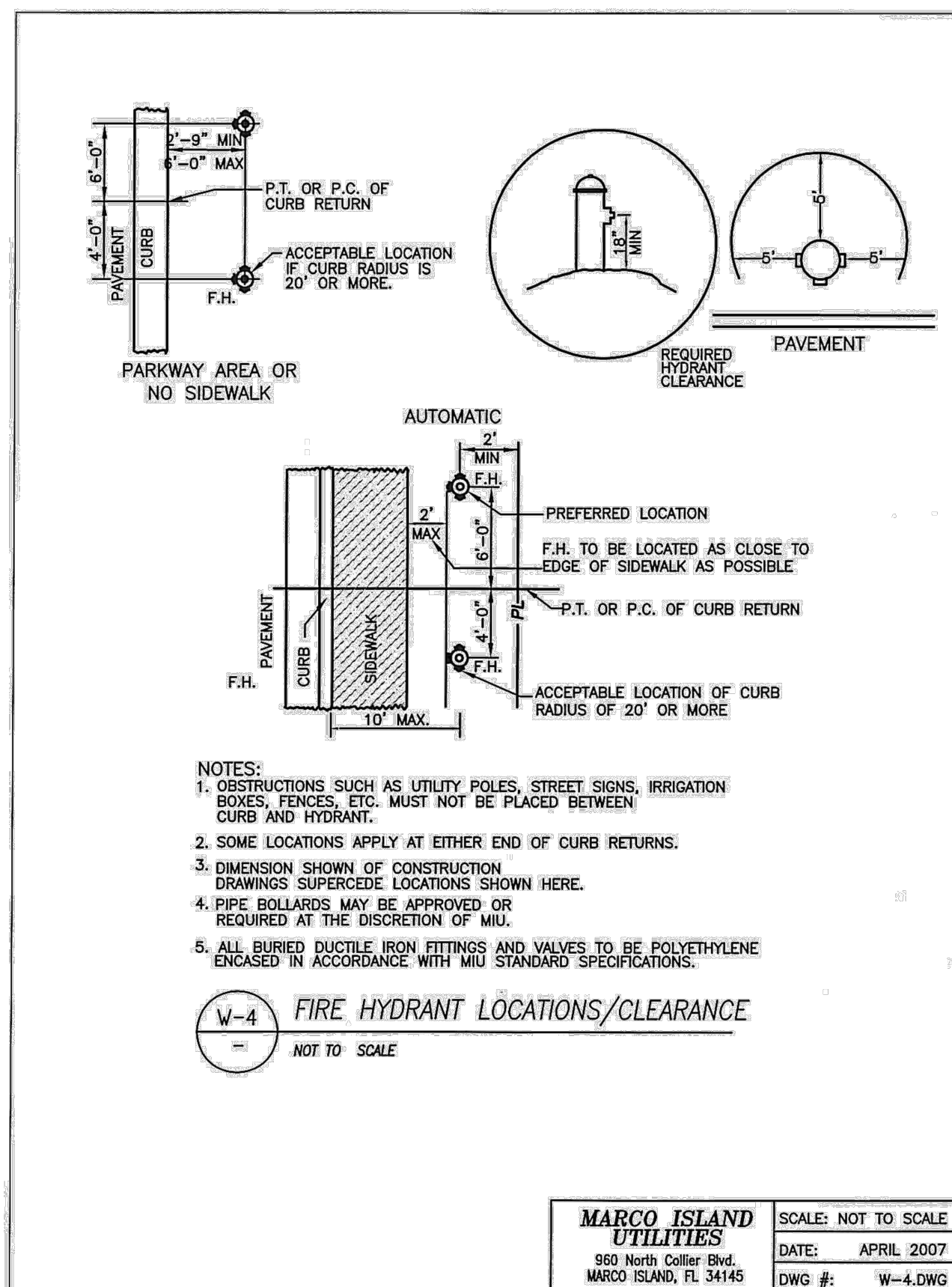
CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA



PERMIT PLANS

UTILITY DETAILS

C. D. HAGAN, P.E. FL REG. #38649 EB #29474 DATE:	DATE 09-20-14	PROJECT NO. 2014-077	SCALE As Shown	SHEET U-02
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REVISIONS	DATE	DESCRIPTION

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

HAGAN
ENGINEERING

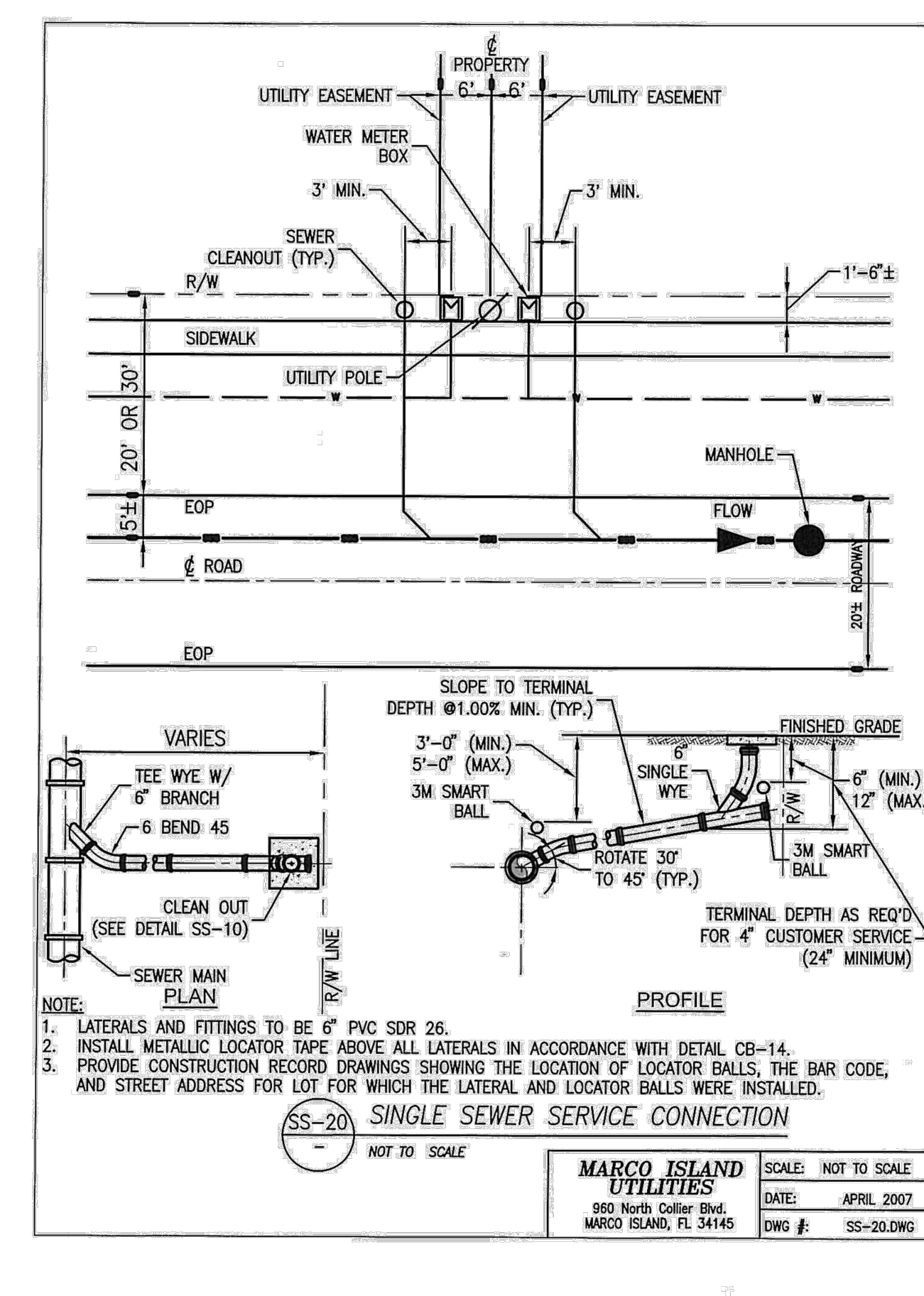
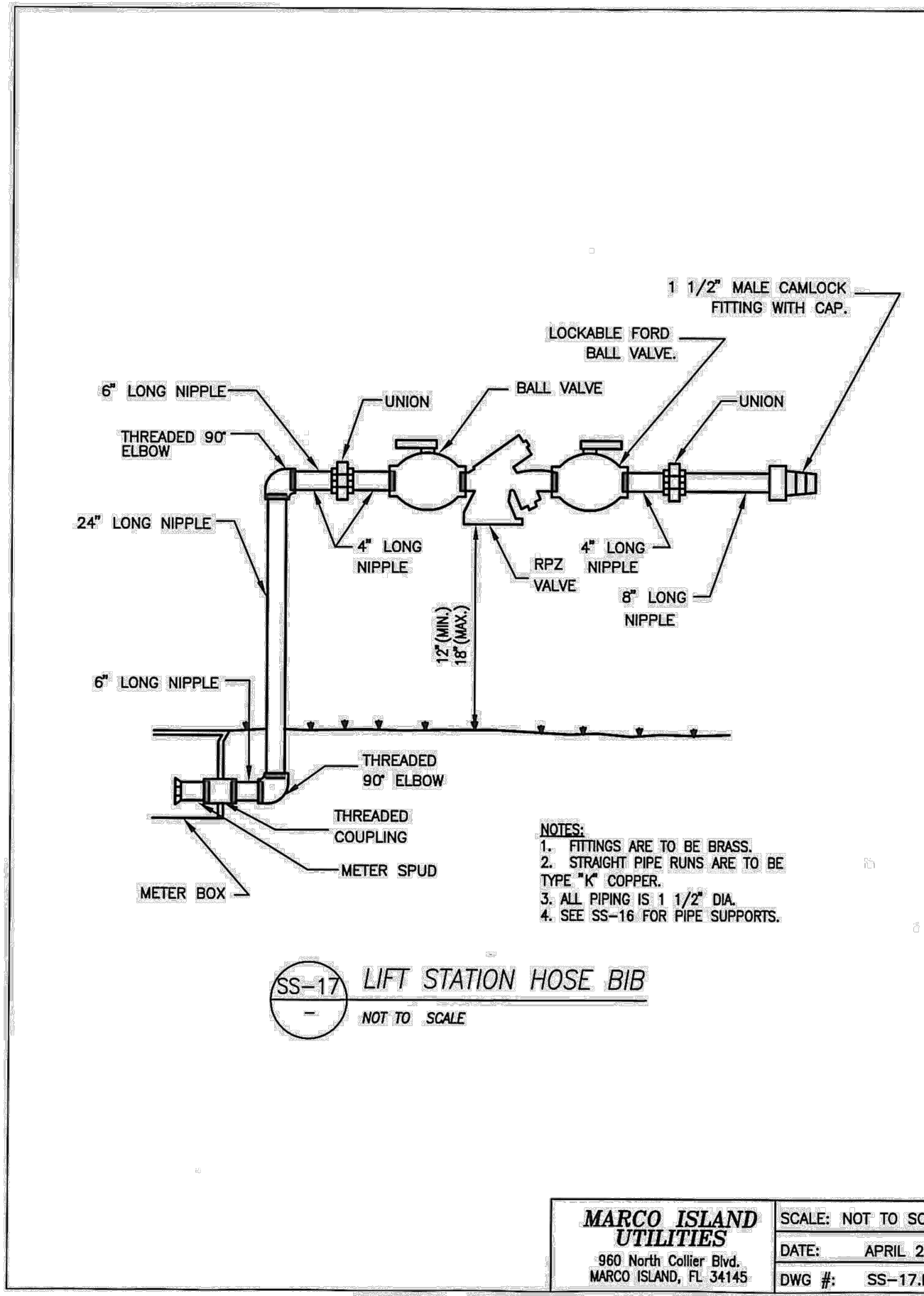
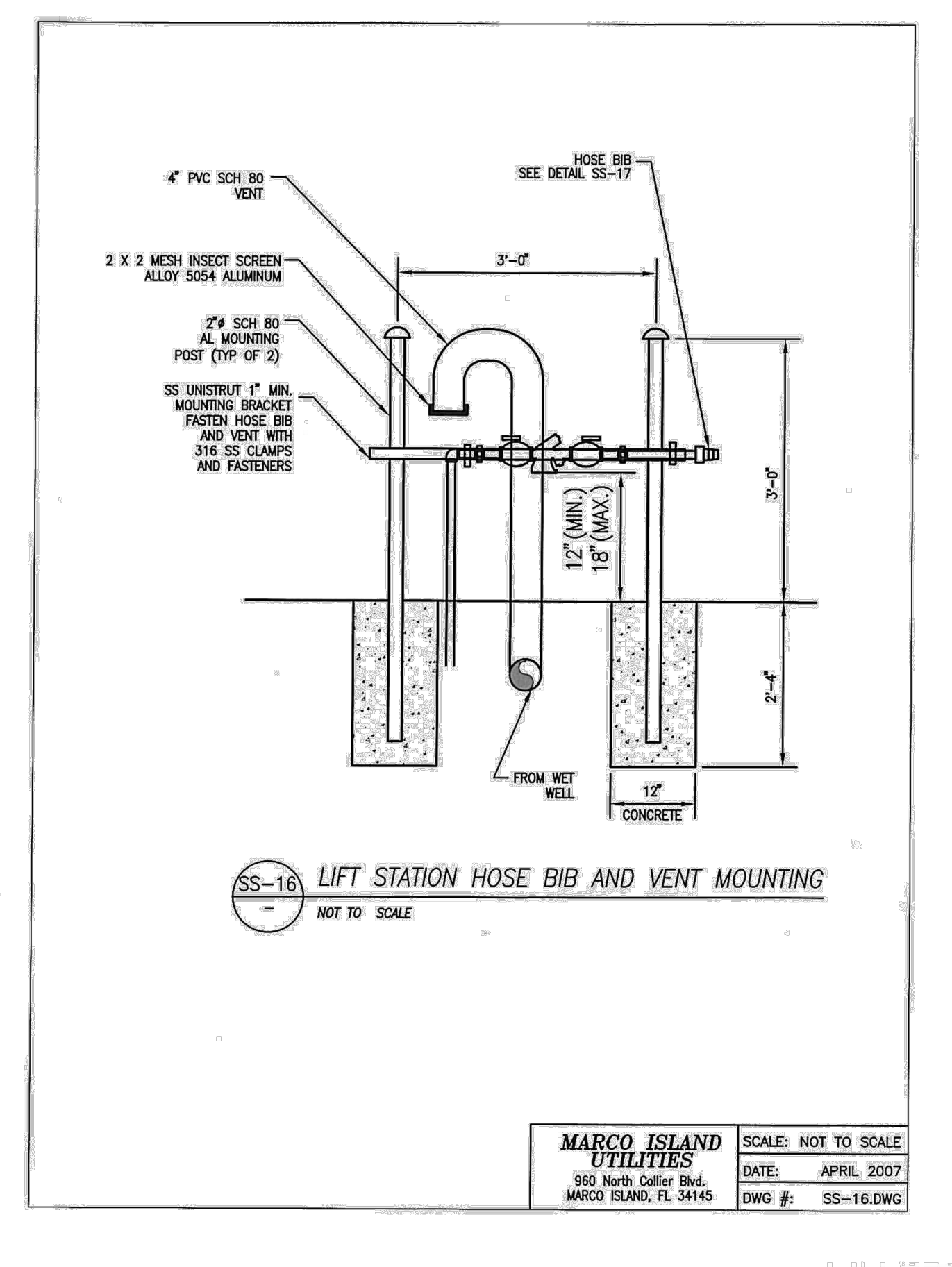
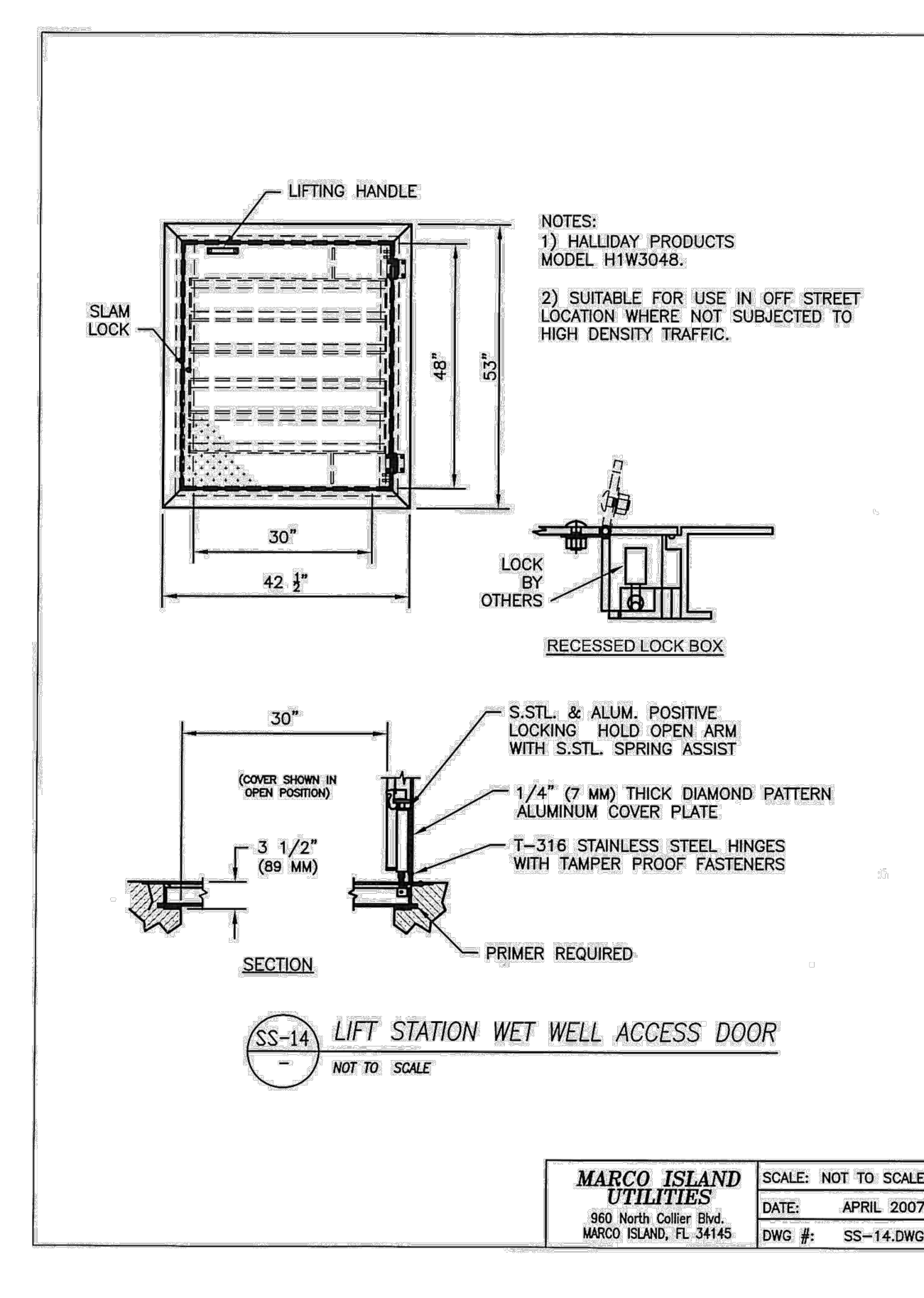
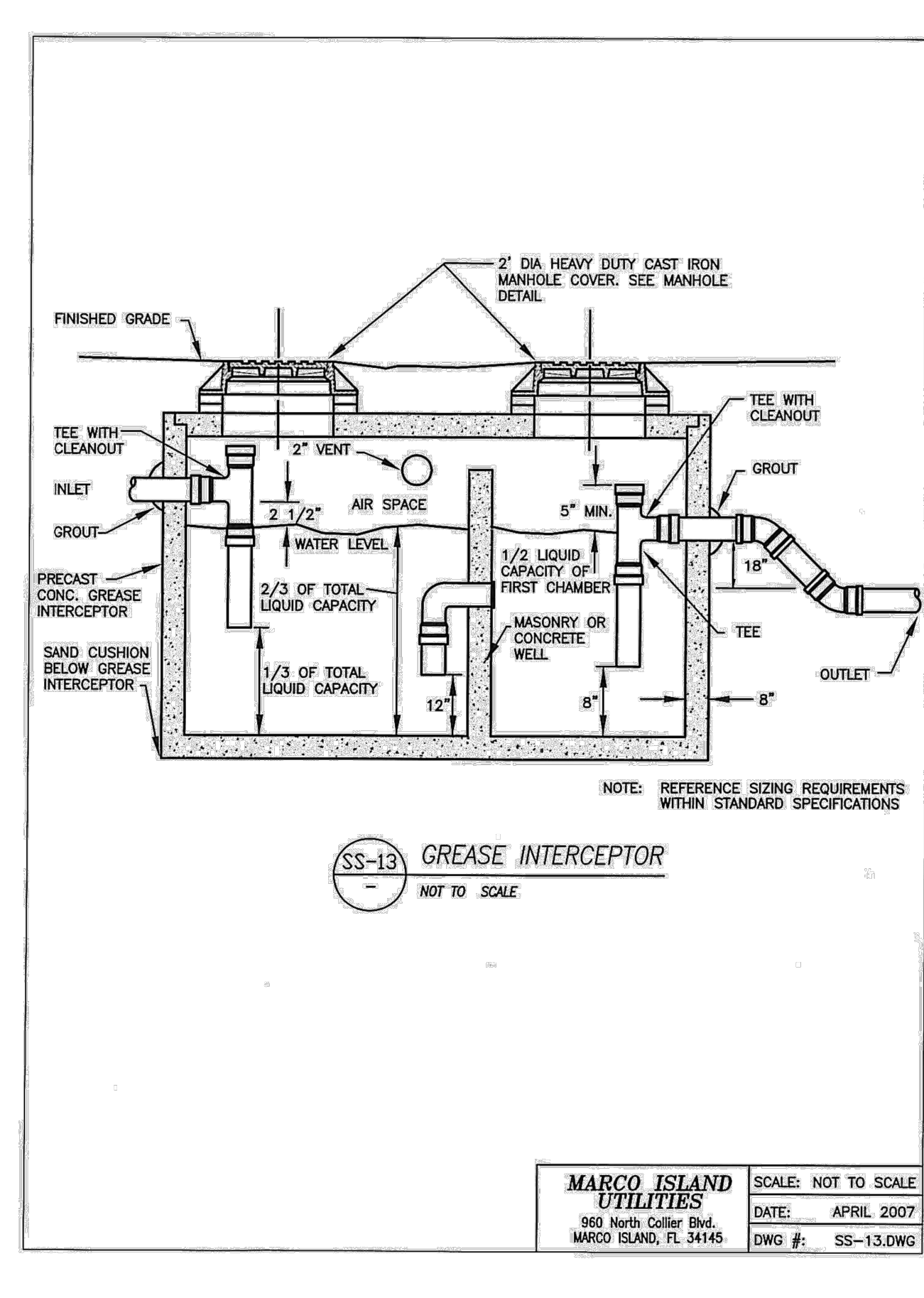
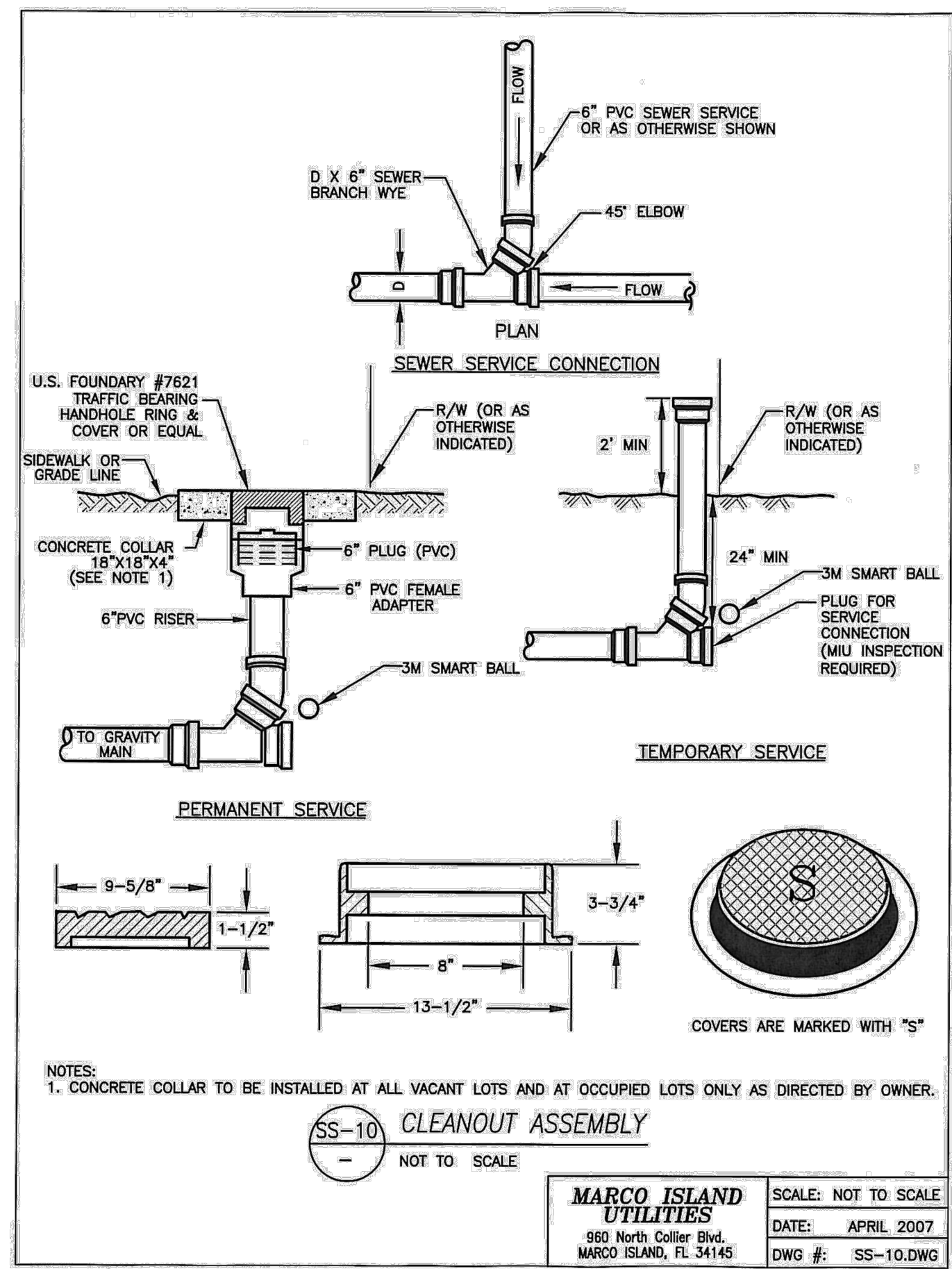
1250 TAMiami TRAIL N., STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

PERMIT PLANS

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE: 09-20-14

UTILITY DETAILS

DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	U-03



NO.	REVISIONS

ROSE MARINA
REDEVELOPMENT PLANS

CITY OF MARCO ISLAND
COLLIER COUNTY, FLORIDA

HAGAN
ENGINEERING

1250 TAMiami TRAIL N., STE. 203B
Naples, Florida 34102
Phone (239) 851-8239

PERMIT PLANS

C. D. HAGAN, P.E.
FL REG. #38649
EB #29474
DATE:

DATE	PROJECT NO.	SCALE	SHEET
09-20-14	2014-077	As Shown	U-04