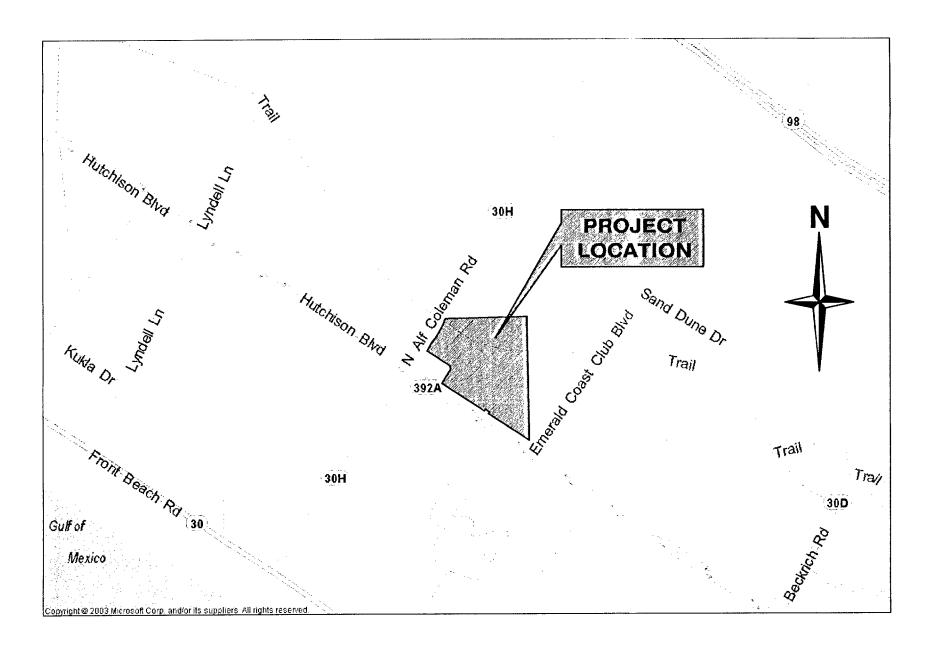
# MIRACLE POINT SUBDIVISION

# FOR:

# MIRACLE STRIP PARTNERS, LLC.

4321 JAN COOLEY DRIVE PANAMA CITY BEACH, FLORIDA



VICINITY MAP

# PREPARED BY:

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Professional Engineering Consultants

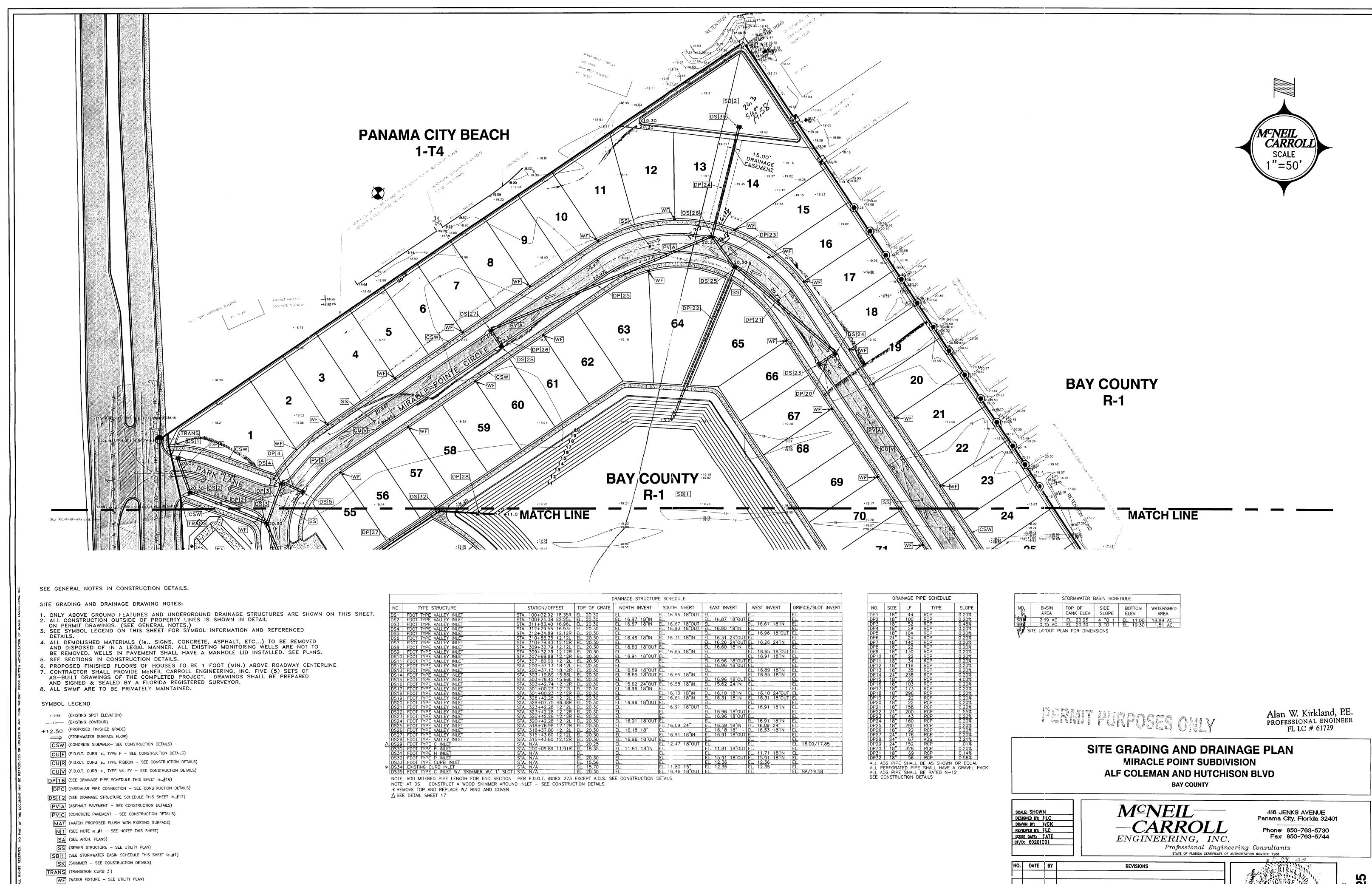
PROJECT 60201B

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DEF Tallanassee Branch Offic

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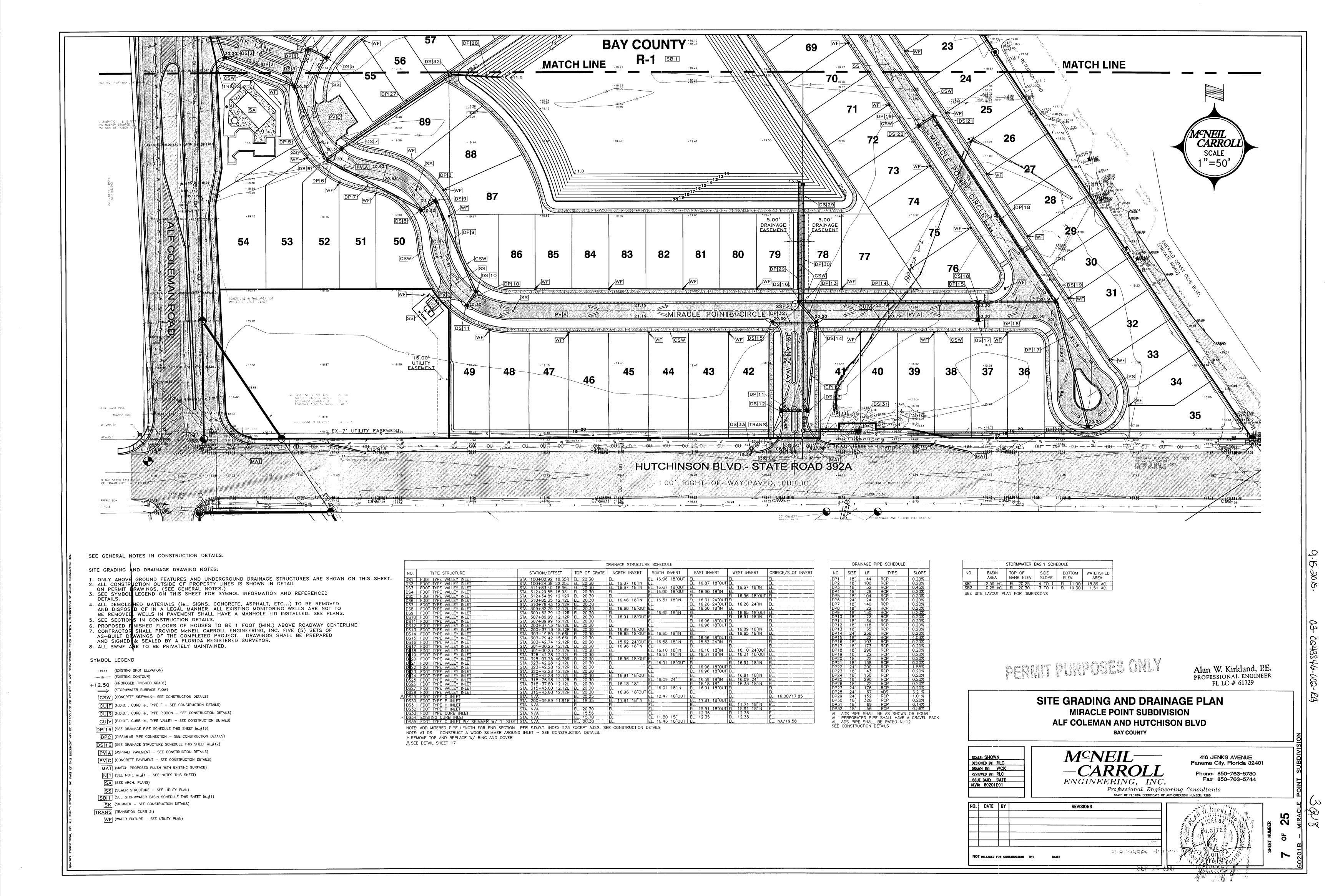
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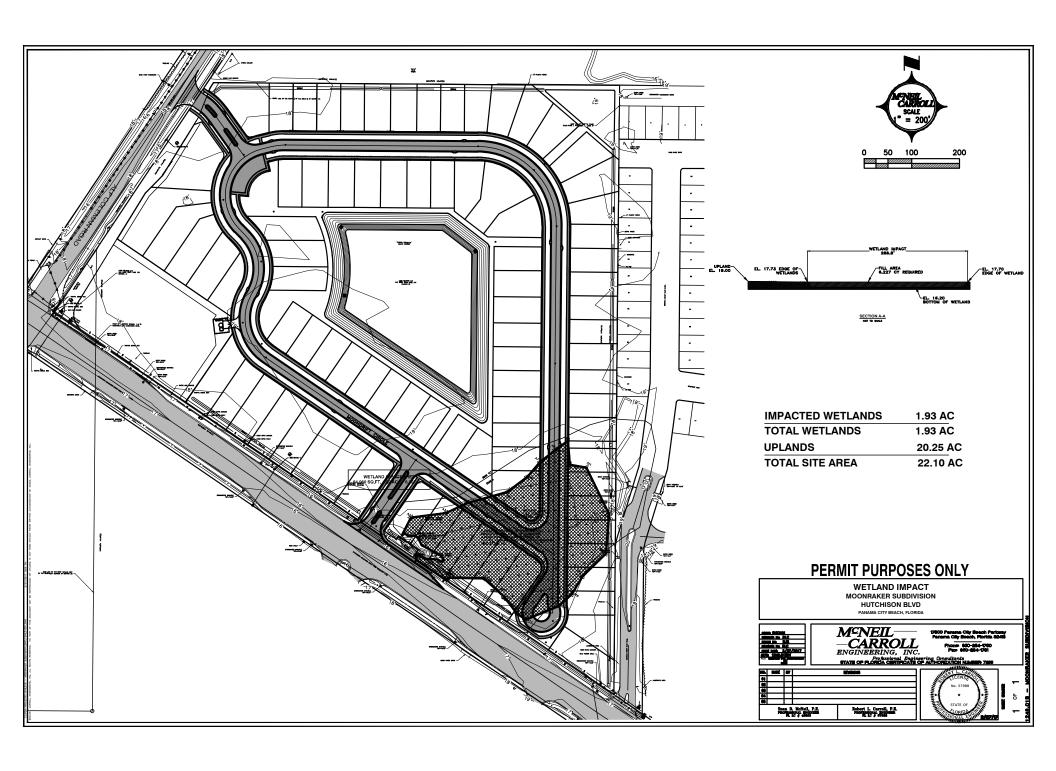


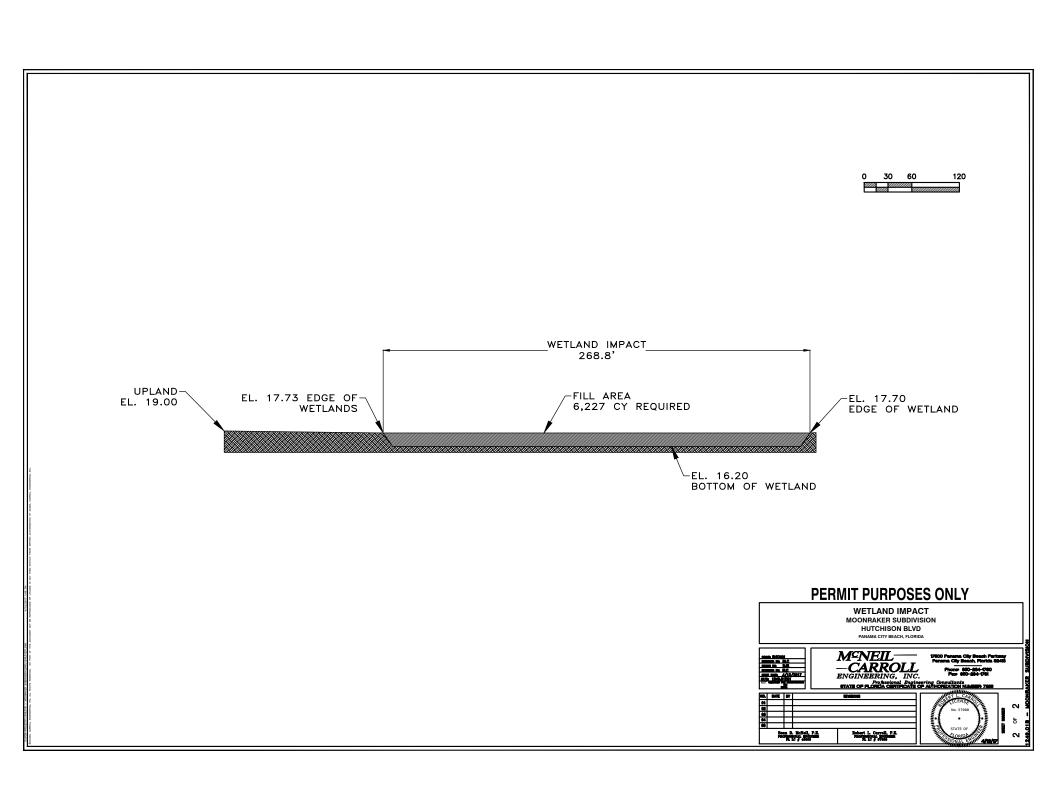
POINT SUBDIVISION

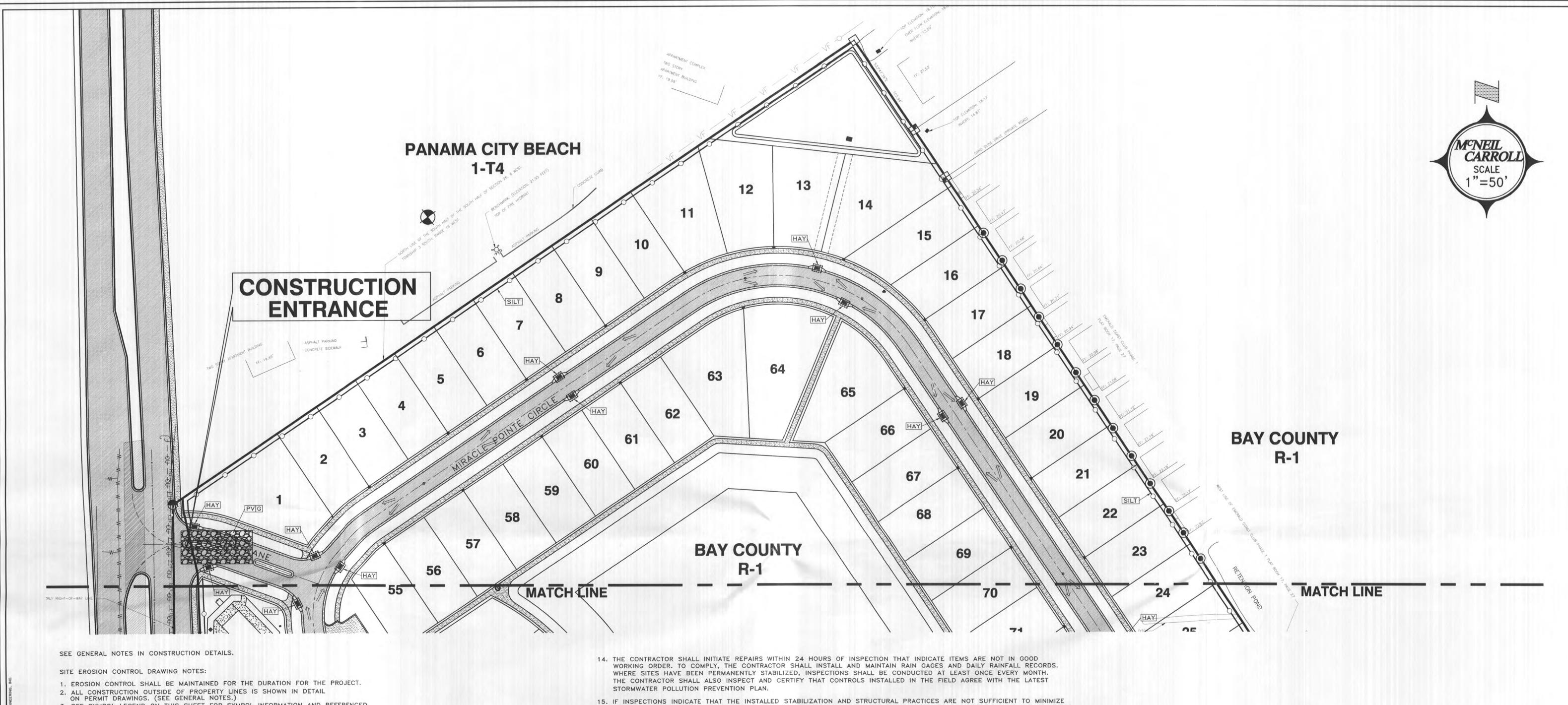
MIRACLE POINT

NOT RELEASED FOR CONSTRUCTION BY:









- 3. SEE SYMBOL LEGEND ON THIS SHEET FOR SYMBOL INFORMATION AND REFERENCED
- 4. SEE SECTIONS IN CONSTRUCTION DETAILS.
- 5. SILT FENCE TO BE INSTALLED AT PERIMETER OF SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES WILL BE UTILIZED THROUGHOUT THE CONSTRUCTION PHASE OF THIS PROJECT TO RESTRICT ANY TURBID RUNOFF FROM LEAVING THE CONSTRUCTION SITE.
- 6. CONTROL OF SEDIMENT-LADEN RUNOFF SHALL BE PROVIDED WITH HAY BALES AND/OR GEOTECH STYLE FABRICS. ALL CONTROL MEASURES SHALL BE PROPERLY LOCATED AND CONSTRUCTED TO PREVENT SEDIMENT TRANSPORT. THE MEANS FOR RETAINING THE SEDIMENTS WILL BE MAINTAINED BY THE CONTRACTOR UNTIL PERMANENT IMPROVEMENTS ARE COMPLETE.
- 7. THE CONTRACTOR IS RESPONSIBLE FOR TREATING ALL ONSITE STORMWATER DRAINAGE AS REQUIRED TO MEET THE CRITERIA OF 62-3 FLORIDA ADMINISTRATIVE CODE, F.A.C. PRIOR TO DISCHARGE.
- 8. ALL CATCH BASINS, INLETS AND ACCESSES TO UNDERGROUND STORMWATER SYSTEMS SHALL BE PROTECTED IN ACCORDANCE WITH THE ATTACHED DETAILS.
- 9. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE TERMS AND CONDITIONS OF ANY STORMWATER PERMITS THAT MAY APPLY (FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, FLORIDA DEPARTMENT OF TRANSPORTATION, BAY COUNTY, WATER MANAGEMENT DISTRICT, ETC.).
- 10. CONSTRUCTION DRIVES SHALL SLOPE AWAY FROM THE ROADWAY AT A MINIMUM SLOPE OF 2.00% TO DISTANCE OF NOT LESS THAN 15 FEET FROM THE EDGE OF PAVEMENT. THE MAXIMUM WIDTH OF THE DRIVE SHALL BE 30 FEET WITH A COARSE GRAVEL SURFACE 4 INCHES THICK. SIGNS SHALL BE PLACED (IN ACCORDANCE WITH CITY
- AND STATE REQUIREMENTS) TO WARN APPROACHING DRIVERS AND PEDESTRIANS. 11. THE DEVELOPER AND/OR CONTRACTOR IS RESPONSIBLE FOR FOLLOWING REQUIRED WASTE MANAGEMENT PRACTICES AS DEFINED IN THE BAY COUNTY MUNICIPAL CODE SECTION 22-91 "UNLAWFUL DISPOSAL OF WASTE, FAILURE TO DELIVER WASTE", WHICH MAKES IT UNLAWFUL FOR ANY PERSON TO DUMP, LEAVE OR BURY ANY SOLID WASTE ON PUBLIC OR OR PRIVATE PROPERTY.
- 12. THE DEVELOPER AND/OR CONTRACTOR IS RESPONSIBLE FOR OBTAINING COVERAGE UNDER THE FDEP GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES PRIOR TO START OF CONSTRUCTION OR ANY DISTURBANCE OF LAND GREATER THAN 1 ACRE. THE DEVELOPER/CONTRACTOR WILL FORWARD A COPY OF THE PERMIT AND WILL PROVIDE 48 HOUR NOTIFICATION TO THE ENGINEERING DEPARTMENT AT 850-784-4060 PRIOR TO COMMENCEMENT OF CONSTRUCTION. ALL REQUIRED ELEMENTS OF THE SWPPP MUST BE IN PLACE PRIOR TO COMMENCEMENT OF CONSTRUCTION. FAILURE TO COMPLY COULD RESULT IN CODE ENFORCEMENT ACTION AND FINES.
- 13. QUALIFIED PERSONNEL SHALL INSPECT THE FOLLOWING ITEMS AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND/OR WITHIN 24 HOURS OF THE END OF A STORM EVENT (RAINFALL) THAT IS A 1/2 INCH OR GREATER:
  - A. POINTS OF DISCHARGE TO WATERS OF THE UNITED STATES.
  - B. POINTS OF DISCHARGE TO MUNICIPAL SEPARATE STORM WATER SYSTEMS. C. DISTURBED AREAS OF THE SITE THAT HAVE NOT BEEN FINALLY STABILIZED.
  - D. AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION. E. STRUCTURAL CONTROLS.
  - F. LOCATIONS WHERE VEHICLES ENTER OR EXIT THE SITE.

- EROSION, RETAIN SEDIMENT, AND PREVENT DISCHARGING POLLUTANTS, THE CONTRACTOR SHALL PROVIDE ADDITIONAL MEASURES, WHERE SITES HAVE BEEN PERMANENTLY STABILIZED, INSPECTIONS SHALL BE CONDUCTED AT LEAST ONCE EVERY MONTH.
- 16. RECORDS OF THE INSPECTIONS AND THE CONSTRUCTION PERMIT MUST BE MAINTAINED AT THE CONSTRUCTION SITE AND BE READILY
- 17. ALL STORMWATER MANAGEMENT FACILITIES AND EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION, DEMOLITION OR OTHER DISTURBANCE TO THE SUBJECT SITE.

SYMBOL LEGEND

(STORMWATER SURFACE FLOW)

HAY (HAY BALE BARRIER - SEE CONSTRUCTION DETAILS)

SILT (SILT FENCE - SEE CONSTRUCTION DETAILS)

TURBID (TURBIDITY BARRIER - SEE CONSTRUCTION DETAILS) PVG (24' WIDE #57 GRAVEL CONSTRUCTION ENTRANCE 6" THICK)

	CONTRACTOR	S / SUBCONTRACTORS CERTIFICATION STATEMENT	
CONDITIONS	OF THE STATE OF F CONSTRUCTION ACTIV	LAW THAT I UNDERSTAND, AND SHALL COMPLY WITH THE TERMS A FLORIDA GENERIC PERMIT FOR STORMWATER DISCHARGE FROM LARG VITIES AND THE STORMWATER POLLUTION PREVENTION PLAN PREPAR	E
NAME	TITLE	COMPANY NAME, ADDRESS AND PHONE NUMBER	DATE
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CONTRACTO	ORS / SUBCONTRACTO	RS CERTIFICATION STATEMENT / OPERATOR/RESPONSIBLE AUTHORIT	Υ
N ACCORDANCE WITH A SYST NFORMATION SUBMITTED. BA IRECTLY RESPONSIBLE FOR	TEM DESIGNED TO ASS ASED ON MY INQUIRY GATHERING THE INFOR LETE. I AM AWARE TO	CUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTURE THAT QUALIFIED PERSONNEL PROPERLY GATHERED AND EVALU- OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THO MATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNI-HAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFIKNOWING VIOLATIONS."	ATED THE SE PERSONS OWLEDGE AND BELIEF,
NAME	TITLE	COMPANY NAME, ADDRESS AND PHONE NUMBER	DATE
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# PERMIT PURPOSES ONLY

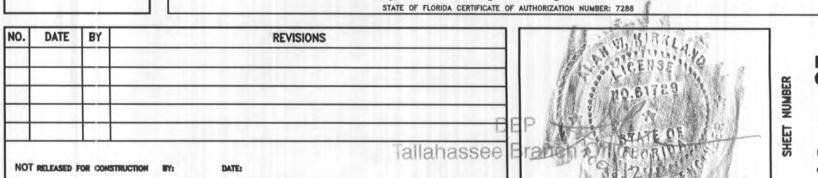
Alan W. Kirkland, P.E. PROFESSIONAL ENGINEER FL LC # 61729

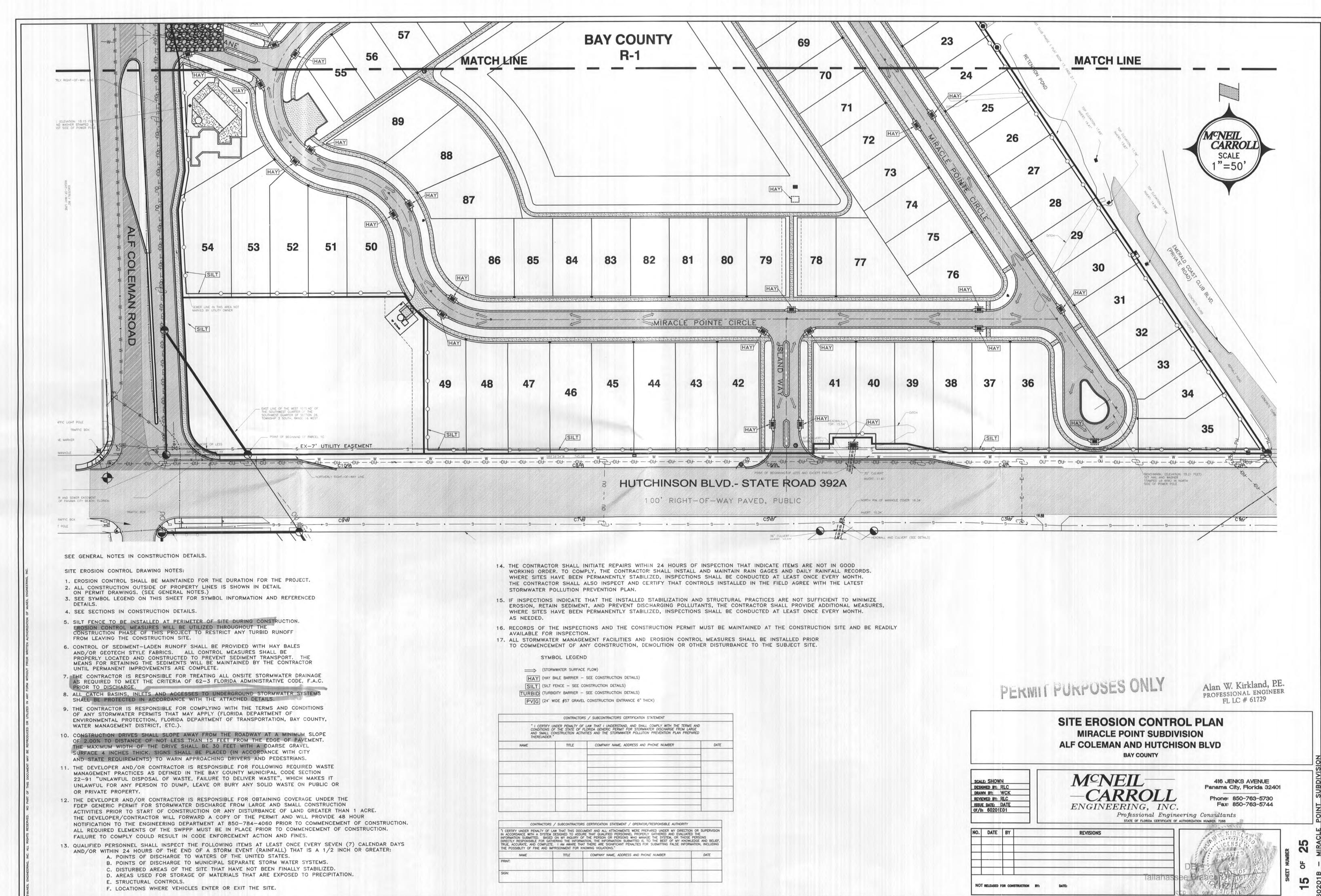
SITE EROSION CONTROL PLAN MIRACLE POINT SUBDIVISION ALF COLEMAN AND HUTCHISON BLVD BAY COUNTY

SCALE: SHOWN	MC
ESIGNED BY: RLC	111
DRAWN BY: WCK	
REVIEWED BY: RLC	
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NEIL-NEERING, INC. Professional Engineering Consultants

416 JENKS AVENUE Panama City, Florida 32401 Phone: 850-763-5730 Fax: 850-763-5744





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#### **GENERAL NOTES**

#### PREVENTION, CONTROL AND ABATEMENT OF EROSION

ALL ON AND OFF SITE WORK INCLUDED CONSISTS OF BUT NOT LIMITED TO THE FOLLOWING: SEEDING AND MULCHING OR SODDING FOR STABILIZATION. CONSTRUCTION OF SEDIMENT BASINS, CHECK DAMS OR FLOATING BARRIERS.

PLACEMENT OF SILTATION FENCES DURING THE COURSE OF CONSTRUCTION.

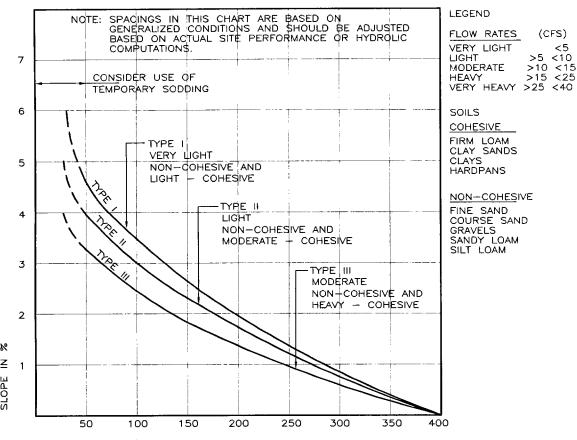
SILT FENCE TO BE INSTALLED AT PERIMETER OF SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES WILL BE UTILIZED THROUGHOUT THE CONSTRUCTION PHASE OF THIS PROJECT TO RESTRICT ANY TURBID RUNOFF FROM LEAVING THE CONSTRUCTION SITE.

CONTROL OF SEDIMENT—LADEN RUNOFF SHALL BE PROVIDED WITH HAY BALES AND/OR GEOTECH STYLE FABRICS. ALL CONTROL MEASURES SHALL BE PROPERLY LOCATED AND CONSTRUCTED TO PREVENT SEDIMENT TRANSPORT. THE MEANS FOR RETAINING THE SEDIMENTS WILL BE MAINTAINED BY THE CONTRACTOR

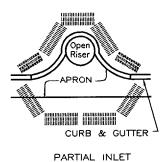
UNTIL PERMANENT IMPROVEMENTS ARE COMPLETE. THE CONTRACTOR IS RESPONSIBLE FOR TREATING ALL ONSITE STORMWATER DRAINAGE AS REQUIRED TO MEET THE CRITERIA OF 62-3 FLORIDA ADMINISTRATIVE CODE, F.A.C.

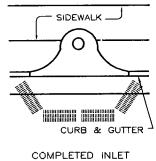
ALL CATCH BASINS, INLETS AND ACCESSES TO UNDERGROUND STORMWATER SYSTEMS SHALL BE PROTECTED IN ACCORDANCE WITH THE ATTACHED DETAILS.

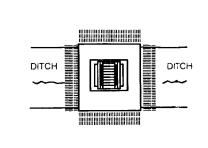
THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE TERMS AND CONDITIONS OF ANY STORMWATER PERMITS THAT MAY APPLY (FLORIDA DEPARTMENT OF ENVIORNMENTAL PROTECTION, FLORIDA DEPARTMENT OF TRANSPORTATION, BAY COUNTY,



SPACING IN FEET FDOT CHART I (BALED HAY OR STRAW BARRIERS AND SILT FENCES - INDEX 102

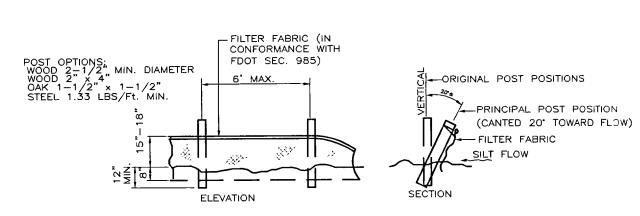






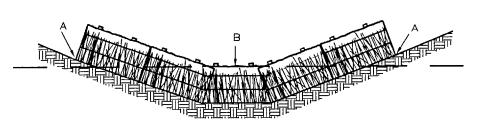
DITCH BOTTOM INLET ANCHOR BALES WITH 2 - 2" x 2" x 4' STAKES PER BALE

PROTECTION AROUND INLETS OR SIMILAR STRUCTURES

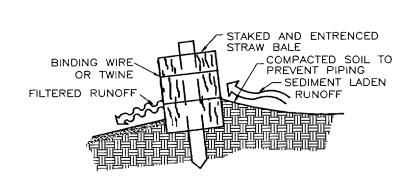


NOTE: SILT FENCE TO BE PAID FOR UNDER THE CONTRACT UNIT PRICE FOR THE STAKED SILT FENCE (LF.)

TYPE III SLIT FENCE DO NOT DEPLOY SILT FENCES IN A MANNER THAT WILL ACT AS A DAM ACCROSS PERMANENT FLOWING WATERCOURSES. SILT FENCES ARE TO BE USED AT UPLAND LOCATIONS AND AS TURBIDITY BARRIERS USED AT PERMANENT BODIES OF WATER.



POINTS A SHOULD BE HIGHER THAN B PROPER PLACEMENT OR STRAW BALE BARRIER IN DRAINAGE WAY



**EROSION CONTROL DETAILS** 

NOT TO SCALE

#### **WORK IN RIGHTS-OF-WAYS**

ALL WORK WITHIN RIGHTS-OF-WAYS SHALL BE IN STRICT ACCORDANCE WITH THE APPLICABLE REQUIREMENTS OF THE RESPECTIVE AGENCIES. THE CONTRACTOR SHALL COOPERATE WITH THE GOVERNING STATE AND LOCAL AGENCIES IN ALL PROCEDURES, MATERIALS AND METHODS OF CONSTRUCTION. ALL OFF-SITE WORK INCLUDED CONSISTS OF BUT IS NOT LIMITED TO THE FOLLOWING: CONSTRUCTION OF DRIVEWAY CONNECTIONS TO EXISTING MUNICIPAL ROADWAYS AS SHOWN PLACEMENT OF ABOVE OR BELOW GROUND UTILITIES AND CONNECTION TO EXISTING UTILITIES AS SHOWN ON PLANS.

#### SITE CLEARING AND DEMOLITION

ANY WORK WITHIN STREET OR HIGHWAY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GOVERNMENTAL AGENCIES HAVING JURISDICTION AND SHALL NOT BEGIN UNTIL THESE GOVERNING AUTHORITIES HAVE BEEN NOTIFIED AND PROPER PERMITS OBTAINED. KEEP ALL AREAS WITHIN THE CONSTRUCTION AREA SUFFICIENTLY DAMPENED TO PREVENT DUST FROM RISING DUE TO CONSTRUCTION. COMPLY WITH ALL ANTI-POLLUTION THIS SUBCONTRACTOR SHALL SEE TO IT THAT TRUCKS LEAVING THE SITE SHALL DO SO IN SUCH A MANNER THAT MUD AND EARTH WILL NOT BE DEPOSITED ON ADJACENT STREET PAVEMENTS. ANY MUD OR EARTH DEPOSITED ON STREET PAVEMENTS SHALL BE PROMPTLY REMOVED BY THIS SUBCONTRACTOR. ALL CLEARING SHALL BE PERFORMED IN A MANNER SUCH AS TO PREVENT ANY WASH-OFF OF SOILS FROM THE SITE INTO STREAMS AND/OR STORM DRAINAGE SYSTEMS.

APPROPRIATE SEDIMENTATION PONDS, DIKES, COLLARS, AND FILTER MEDIA SHALL BE EMPLOYED TO INSURE COMPLIANCE WITH THESE REQUIREMENTS. WHERE A SPECIFIC STATUTE GOVERNS THESE PROCEDURES, SUCH STATUTE SHALL BE COMPLIED WITH IN

TOPSOIL IS DEFINED AS FRIABLE CLAY LOAM SURFACE SOIL FOUND IN A DEPTH OF NOT LESS THAN 4". SATISFACTORY TOPSOIL IS REASONABLE FREE OF SUBSOIL, CLA' LUMPS, STONES, AND OTHER OBJECTS OVER 2" IN DIAMETER, AND WITHOUT WEEDS, STRIP TOPSOIL TO WHATEVER DEPTHS ENCOUNTERED IN A MANNER TO PREVENT INTERMINGLING WITH UNDERLYING SUBSOIL OTHER OBJECTIONABLE MATERIAL. REMOVE HEAVY GROWTHS OF GRASS FROM AREAS BEFORE STRIPPING. WHERE TREES ARE INDICATED TO BE LEFT STANDING, STOP TOPSOIL STRIPPING A SUFFICIENT DISTANCE TO PREVENT DAMAGE TO MAIN ROOT SYSTEM. DISPOSE OF UNSUITABLE OR EXCESS

TOPSOIL SAME AS WASTE MATERIAL, HEREIN SPECIFIED. BURNING WILL NOT BE PERMITTED ON PROJECT SITE.

ALL EXISTING STRUCTURES, UTILITIES AND OTHER OBSTACLES IN CONFLICT WITH THE PROPOSED FACILITY SHALL BE REMOVED AND DISPOSED OF IN A LEGAL MANNER. SEE OTHER UTILITY AND MISCELLANEOUS NOTES CONCERNING REMOVAL. ALLOW TESTING SERVICES TO INSPECT AND APPROVE SUBGRADE AND FILL LAYERS BEFORE FURTHER CONSTRUCTION WORK IS PERFORMED.

ATTENTION IS CALLED TO THE FACT THAT THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL UTILITY COMPANIES TO OBTAIN LOCATIONS OF ALL EXISTING UTILITIES OR OBSTRUCTIONS WHICH HE MAY ENCOUNTER DURING CONSTRUCTION. AFTER LOCATION OF UTILITIES BY THE APPROPRIATE UTILITY COMPANY, IT IS THE CONTRACTOR'S LIABILITY TO PROTECT ALL SUCH UTILITY LINES, INCLUDING SERVICE LINES AND APPURTENANCES, AND TO REPLACE AT HIS OWN EXPENSE ANY WHICH MAY BE DAMAGED BY THE CONTRACTOR'S EQUIPMENT OF FORCES DURING CONSTRUCTION OF THE

TO PROTECT PERSON FROM INJURY AND TO AVOID PROPERTY DAMAGE, ADEQUATE BARRICADES, CONSTRUCTION SIGNS, TORCHES, RED LANTERNS AND GUARDS AS REQUIRED SHALL BE PLACED AND MAINTAINED DURING THE PROGRESS OF THE CONSTRUCTION WORK ADEQUATE PROVISION SHALL BE MADE FOR THE FLOW OF SEWERS, DRAINS, AND WATER COURSES ENCOUNTERED DURING CONSTRUCTION, AND THE STRUCTURES WHICH MAY HAVE BEEN DISTURBED SHALL BE SATISFACTORILY RESTORED BY THE CONTRACTOR.

#### **EXCAVATING, FILLING AND GRADING**

ALL ON AND OFF-SITE WORK INCLUDED CONSISTS OF BUT IS NOT LIMITED TO THE FOLLOWING: ALL ON AND OFF-SITE PREPARATION WORK FOR EXCAVATION, PIPE BED PREPARATION AND BACKFILL FOR UNDERGROUND UTILITIES. COMPACTION OF BACKFILL.

REMOVAL OF ALL EXCESS OR UNUSABLE MATERIAL.

APPROVAL REQUIRED: ALL FILL MATERIAL SHALL BE SUBJECT TO APPROVAL OF THE GEOTECHNICAL ENGINEER. ALL ON—SITE FILL MATERIAL SHALL BE SOIL—ROCK MIXTURE WHICH IS FREE FROM ORGANIC MATTER (LESS THAN 3% BY IGNITION), AND OTHER DELETERIOUS SUBSTANCE. IT SHALL CONTAIN NO ROCKS OR LUMPS OVER SIX (6) INCHES IN GREATEST DIMENSION AND NOT MORE THAN 15% OF THE ROCKS OR LUMPS BY DRY WEIGHT, SHALL BE LARGER THAN 2 AND 14 2 INCHES IN CREATEST DIMENSION. THAN 2 AND 1/2 INCHES IN GREATEST DIMENSION.

ALL IMPORTED FILL MATERIAL SHALL MEET THE REQUIREMENTS OF ON—SITE FILL MATERIAL AND SHALL IN ADDITION, BE PREDOMINANTLY GRANULAR WITH A MAXIMUM PARTICLE SIZE OF TWO (2) INCHES AND A PLASTICITY INDEX OF 12 OR LESS. N-SITE FILL MATERIAL USED FOR TRENCH AND STRUCTURAL BACKFILL SHALL MEET ALL IMPORTED COHESIONLESS MATERIAL USED FOR TRENCH AND STRUCTURAL BACKFILL SHALL BE FREE FROM ORGANIC SUBSTANCE (LESS THAN 3% BY IGNITION) AND OTHER DELETERIOUS MATTER, SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.

PRIOR TO ALL WORK OF THIS SECTION, CONTRACTOR IS TO BECOME THOROUGHLY FAMILIAR WITH THE SITE, THE SITE CONDITIONS, AND ALL PORTIONS OF THE WORK, FALLING WITHIN THIS SECTION. DO NOT ALLOW OR CAUSE ANY OF THE WORK PERFORMED OR INSTALLED TO BE COVERED UP OR ENCLOSED BY WORK OF THIS SECTION PRIOR TO ALL REQUIRED INSPECTIONS, TESTS AND APPROVALS.

AFTER THE WORK HAS BEEN COMPLETELY TESTED, INSPECTED AND APPROVED, MAKE ALL REPAIRS AND REPLACEMENTS NECESSARY TO RESTORE THE WORK TO THE CONDITION IN WHICH IT WAS FOUND AT THE TIME OF UNCOVERING, ALL AT NO ADDITIONAL COST TO

FOR SETTING AND ESTABLISHING FINISH ELEVATIONS AND LINES, SECURE THE SERVICES OF A REGISTERED CIVIL ENGINEER OR LAND SURVEYOR ACCEPTABLE TO THE OWNER, CAREFULLY PRESERVE ALL DATA AND ALL MONUMENTS SET BY THE CIVIL ENGINEER OR LAND SURVEYOR, AND , IF DISPLACE OR LOST, IMMEDIATELY REPLACE TO THE APPROVAL OF THE OWNER AND AT NO ADDITIONAL COST TO THE OWNER.

PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES, ETC. NECESSARY AND INCIDENTAL TO THE COMPLETION OF ALL EARTHWORK AS SHOWN ON THE DRAWINGS AND SPECIFICATIONS. ALL OFF-SITE WORK INCLUDED CONSISTS OF BUT IS NOT LIMITED TO THE FOLLOWING: THIS WORK CONSISTS OF GRADING IN ORDER TO ACHIEVE FINISHED ELEVATIONS SHOWN ON THE CONSTRUCTION PLANS.

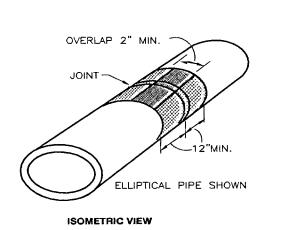
ALL GRADED SURFACES SHALL BE SMOOTH AND UNIFORM, WITHOUT ABRUPT CHANGES IN SLOPE OR GRADE. AREAS TO BE COVERED WITH PAVING SHALL BE FINE GRADED TO THE REQUIRED ELEVATIONS AND SLOPES. FINISHED SURFACES IN ALL OTHER AREAS MAY VARY UP TO 0.1 FEET FROM THE REQUIRED ELEVATIONS. PERFORM EXCAVATION WORK IN COMPLIANCE WITH APPLICABLE REQUIREMENTS OF GOVERNING AUTHORITIES HAVING JURISDICTION. ALL MATERIALS AND CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH SECTION 120 OF THE STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, STATE OF FLORIDA, DEPARTMENT OF TRANSPORTATION, LATEST EDITION.

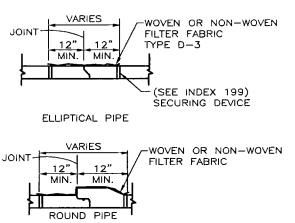
EMPLOY, AT CONTRACTOR'S EXPENSE, DESIGN LABORATORY TO PERFORM SOIL TESTING AND INSPECTION SERVICE FOR QUALITY CONTROL TESTING DURING EARTHWORK OPERATIONS. SUBMIT FOLLOWING REPORTS DIRECTLY TO ENGINEER AND COPIES TO CITY ENGINEERING DEPARTMENT FROM THE TESTING SERVICES, WITH COPY TO THE

TEST REPORTS ON BORROW MATERIAL.

FIELD DENSITY TEST REPORTS. ONE OPTIMUM MOISTURE-MAXIMUM DENSITY CURVE FOR EACH TYPE OF SOIL

WHERE REQUIRED, THE SITE SHALL BE EXCAVATED TO THE GRADES COURSE, EXCAVATED MATERIAL THAT IS SUITABLE SHALL BE USED IN THE FILL SECTIONS OF THE SITE. NO SUITABLE MATERIAL SHALL BE REMOVED FROM THE SITE. ANY EXCESS SUITABLE MATERIAL SHALL BE PLACED AT THE DIRECTION OF THE ENGINEER. EXCAVATION FOR MANHOLES, CATCH BASINS, AND OTHER ACCESSORIES SHALL BE SUFFICIENT TO LEAVE AT LEAST 12 INCHES IN THE CLEAR BETWEEN THEIR OUTER SURFACES AND THE EMBANKMENT OF TIMBER THAT MAY BE USED TO PROTECT THEM.



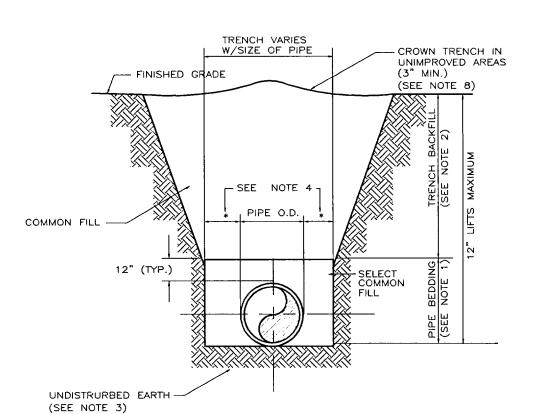


PIPE SECTIONS

COST OF FILTER FABRIC JACKET TO BE INCLUDED IN COST OF PIPE CULVERTS. FOR ALL PIPE TYPES - CONCRETE PIPE SHOWN

FILTER FABRIC JACKET DETAIL

NOT TO SCALE



PIPE BEDDING: SELECT COMMON FILL COMPACTED TO 95% OF THE MAXIMUM DENSITY AS PER AASHTO T-180.

- 2. TRENCH BACKFILL: COMMON FILL COMPACTED TO 95% (6" LIFTS) OF THE MAXIMUM DENSITY AS PER AASHTO T-180. 3. PIPE BEDDING UTILIZING SELECT COMMON FILL OR BEDDING ROCK IN ACCORDANCE WITH TYPE A BEDDING AND TRENCHING DETAIL MAY BE REQUIRED AS DIRECTED BY THE CITY.
- 4. (\*): 15" MAX. FOR PIPE DIAMETER LESS THAN 24", AND 24" MAX. FOR PIPE DIAMETER 24" AND LARGER. 5. WATER SHALL NOT BE PERMITTED IN THE TRENCH DURING CONSTRUCTION.
- 6. ALL PIPE TO BE INSTALLED WITH BELL FACING UPSTREAM TO THE DIRECTION OF THE FLOW REFER TO SECTION 32.5 OF THE MANUAL FOR SHEETING AND BRACING IN EXCAVATIONS.
- 8. FINAL RESTORATION IN IMPROVED AREAS SHALL BE IN COMPLIANCE WITH ALL APPLICABLE REGULATIONS OF GOVERNING AGENCIES. SURFACE RESTORATION WITHIN CITY RIGHT—OF—WAY SHALL COMPLY WITH REQUIREMENTS OF RIGHT-OF-WAY UTILIZATION REGULATIONS AND ROAD CONSTRUCTION SPECIFICATIONS.

TRENCHES AND EXCAVATION PITS SHALL NOT BE BACKFILLED UNTIL ALL TESTS AND INSPECTIONS COVERING THE INSTALLATION OF THE STORM DRAINAGE SYSTEM HAVE BEEN PERFORMED AND APPROVED. ALL TIMBER SHEETING BELOW A PLANE ONE FOOT ABOVE TOP OF PIPE SHALL REMAIN IN PLACE IN ORDER NOT TO DISTURB PIPE GRADING. BEFORE BACKFILLING, REMOVE ALL OTHER SHEETING, BRACING AND SHORING. PIPE TO BE CAREFULLY COMPACTED TO NINETY FIVE PERCENT (95%) OF MAXIMUM DENSITY AS PER ASTM D-1557 UNTIL ONE FOOT (1') OF COVER EXISTS OVER PIPE.

IN STREETS, DRIVES, PARKING LOTS AND OTHER AREAS TO HAVE OR HAVING IMPROVED HARD SURFACES, BACKFILL SHALL BE MATERIAL SPECIFIED AS FOR PIPE BEDDING AND SHALL BE DEPOSITED IN SIX INCH (6"O LOOSE LAYERS AS OPTIMUM MOISTURE CONTENT (+ 2%) AND COMPACTED TO 95% OF MAXIMUM DENSITY AS DETERMINED BY ASTM D-1557 WHERE SERVICES OR UTILITY LINES CROSS STREET, BEDDING SHALL BE CARRIED TO FIVE FEET (5') BEHIND THE CURB, OR WHERE SIDEWALKS EXISTS, TO THE SIDE OF SIDEWALK FARTHEST AWAY FROM THE STREET.

MATERIAL USED FOR BEDDING SHALL MEET CURRENT RECOMMENDATIONS OF THE PIPE MANUFACTURER AND SHALL BE APPROVED BY THE ENGINEER. THE SPECIFIED COHESIONLESS MATERIAL SHALL BE PLACED IN THE TRENCH SIMULTANEOUSLY ON EACH SIDE OF THE PIPE TO THE FULL WIDTH OF THE TRENCH. MATERIAL WILL BE PLACED IN A MAXIMUM LIFT OF SIX (6) INCHES (COMPACTED DEPTH) TO A MINIMUM DEPTH OF ONE (1) FOOT ABOVE THE CROWN OF THE PIPE.

PERFORM ALL TRENCHING REQUIRED FOR THE INSTALLATION OF UTILITIES AS SHOWN ON PLANS AND SPECIFIED HEREIN. MAKE ALL TRENCHES OPEN VERTICAL CONSTRUCTION WITH SUFFICIENT WIDTH TO PROVIDE FREE WORKING SPACE AT BOTH SIDE OF THE TRENCH AND AROUND THE INSTALLED ITEMS AS REQUIRED FOR CAULKING, JOINING, BACKELLING, AND COMPACTING

PROPERLY SUPPORT ALL TRENCHES IN STRICT ACCORDANCE WITH ALL PERTINENT RULES GRADE THE TRENCH BOTTOM TO PROVIDE A SMOOTH, FIRM AND STABLE FOUNDATION FREE OF ROCK POINTS THROUGHOUT THE LENGTH OF THE PIPE. IN AREAS WHERE SOFT, UNSTABLE MATERIALS ARE ENCOUNTERED AT THE SURFACE UPON WHICH COHESIONLESS MATERIAL IS TO BE PLACED, REMOVE THE UNSTABLE MATERIAL AND REPLACE IT WITH MATERIAL APPROVED BY THE ENGINEER, MAKE SUFFICIENT DEPTH TO DEVELOP A FIRM FOUNDATION FOR THE ITEM BEING INSTALLED.

AT EACH JOINT IN PIPE, RECESS THE BOTTOM OF THE TRENCH AS REQUIRED INTO THE FIRM FOUNDATION IN SUCH A MANNER AS TO RELIEVE THE BELL OF THE PIPE OF ALL LOAD AND TO ENSURE CONTINUOUS BEARING OF THE PIPE BARREL ON THE FIRM

ACCURATELY SHAPE ALL PIPE SUBGRADE AND FIT THE BOTTOM OF THE TRENCH TO THE PIPE SHAPE; USE A DRAG TEMPLATE SHAPED TO CONFORM TO THE OUTER SURFACE OF THE PIPE IF OTHER METHODS DO NOT PRODUCE SATISFACTORY RESULTS. SHAPING WILL CONFORM TO THE OUTSIDE OF THE PIPE FOR A DEPTH OF NOT LESS THAN 10% OF THE TOTAL HEIGHT (OUTSIDE DIMENSION) OF THE PIPE.

PIPE TRENCHES SHALL BE EXCAVATED TO A DEPTH THAT WILL INSURE A MINIMUM OF THIRTY INCHES OF COVER LESS OTHERWISE SHOWN ON THE DRAWINGS OR DIRECTED. BACKFILL OF EARTH AROUND MANHOLES SHALL BE FILLED WITH THOROUGHLY COMPACTED SAND OR GRAVEL AT THE EXPENSE OF THE CONTRACTOR. TRENCHES SHALL BE BACKFILLED WITH EXCAVATED MATERIALS, FREE FROM LARGE CLODS OR STONES. BACKFILL SHALL BE DEPOSITED IN LAYERS NOT TO EXCEED 6—INCHES (6") IN THICKNESS, MOISTENED, AND COMPACTED TO DENSITY EQUAL TO OR GREATER THAN 95% OF THE MAXIMUM DENSITY OF AASHTO STANDARD METHOD T—99, TO A MINIMUM DEPTH OF 12—INCHES OVER THE PIPE. THE REMAINDER OF THE BACKFILL SHALL BE PLACED IN 8—INCH LAYERS COMPACTED TO 95% MAXIMUM DENSITY UNLESS THE BACKFILL IS BENEATH PAVED OR BUILDING AREAS IN WHICH CASE IT SHALL BE COMPACTED TO 95% OF A MODIFIED PROCTOR.

EXCAVATIONS FOR PIPE LAYING OPERATIONS SHALL BE CONSTRUCTED IN A MANNER TO CAUSE THE LEAST INTERRUPTION TO TRAFFIC. WHEN TRAFFIC MUST CROSS OPEN TRENCHES THE CONTRACTOR SHALL PROVIDE SUITABLE BRIDGES.

CORD FENCE — POSTS WITH A MINIMUM SIZE 2 INCHES SQUARE OR 2 INCHES IN DIAMETER SET SECURELY IN GROUND AND PROTRUDING AT LEAST 4 FEET ABOVE THE GROUND SHALL BE PLACED AT THE LIMITS OF CLEARING WITH ORANGE CONSTRUCTION MESH FENCING RUNNING BETWEEN BOSTS

TREE BARRIER DETAIL

NOT TO SCALE

BETWEEN POSTS.

TYPE B BEDDING AND TRENCHING DETAIL NOT TO SCALE



#### **SEEDING RATE ZONES**

	SEE	DING R	ATES (I	_BS/AC	:)			
TYPE OF SEED	ZONE I			ZONE II				
	COASTAL		INLAND		COASTAL		INLAND	
	MAR. TO NOV.	NOV. TO MAR.	MAR. TO OCT.	OCT. TO MAR.	FEB. TO DEC.	DEC. TO FEB.	FEB. TO DEC.	DEC. TO FEB.
PERMANENT GRASS								
UNHULLED BERMUDA	15	15	10	15	15	15	10	15
BAHIA ARGENTINA OR PENSACOLA			30	30			30	30
QUICK GROWING								
BROWN TOP MILLET	20		20		20		20	
ANNUAL RYE GRASS		20		20		20		20
TOTAL POUNDS PER ACRE	35	35	60	65	35	35	60	65
NOTE: THE SEEDING RATES SHOWN IN THIS TABLE APPLY ONLY WHEN SEED IS SPREAD BY AN APPROVED MECHANICAL SPREADER MEETING THE REQUIREMENTS OF SECTION 570 AND 577 OF THE STANDARD SPECIFICATIONS.								

GENERAL NOTES

1. SPECIAL ATTENTION IS TO BE DIRECTED TO THE CONSTRUCTION OF THE REQUIRED 1" DROP—OFF AT EDGE OF PAVEMENT.

2. FERTILIZE ENTIRE UNPAVED SHOULDER AND FRONT SLOPE TO TOE OF SLOPE OR BOTTOM OF DITCH.

3. TOPSOIL OBTAINED FROM BORROW PITS OR OTHER SOURCES MAY BE USED IN LIEU OF EXCAVATED TURF AND TOPSOIL WHEN ECONOMICALLY FEASIBLE. NO ADDITIONAL PAYMENT WILL BE MADE FOR SUBSTITUTING TOPSOIL FOR EXCAVATED TURF OR TOPSOIL.

TOPSOIL: IF THE QUANTITY OF EXISTING STORED OR EXCAVATED TOPSOIL IS INADEQUATE FOR PLANTING, SUFFICIENT ADDITIONAL TOPSOIL SHALL BE FURNISHED. TOPSOIL FURNISHED SHALL BE A NATURAL, FERTILE, FRIABLE SOIL, POSSESSING CHARACTERISTICS OF REPRESENTATIVE PRODUCTIVE SOILS IN THE VICINITY. IT SHALL BE OBTAINED FROM NATURALLY WELL-DRAINED AREAS.

TOPSOIL SHALL BE WITHOUT ADMIXTURE OF SUBSOIL AND FREE FROM JOHNSON GRASS (SORGHUM HALEPENSE), NUT GRASS (CYPERUS ROTUNDUS) AND OBJECTIONABLE WEEDS AND

GROUND LIMESTONE (DOLOMITE) CONTAINING NOT LESS THAN 85 PERCENT OF TOTAL CARBONATES, AND SHALL BE GROUND TO SUCH A FINENESS THAT 50 PERCENT WILL PASS A 100—MESH SIEVE AND 90 PERCENT WILL PASS A 20—MESH SIEVE. 16-16-16 FORMULATION OF WHICH 60 PERCENT OF THE NITROGEN IS IN THE UREA-FORMALDEHYDE FORM AND SHALL CONFORM TO THE APPLICABLE STATE FERTILIZER LAWS. IT SHALL BE GRANULATED SO THAT 80 PERCENT IS HELD ON A 16-MESH SCREEN,

AREAS TO BE GRASSED SHALL BE GRADED TO REMOVE DEPRESSIONS, UNDULATIONS, AND IRREGULARITIES IN THE SURFACE BEFORE GRASSING. PLACING TOPSOIL: AREAS TO BE GRASSED SHALL HAVE A MINIMUM TOPSOIL OVER OF TWO INCHES. TOPSOIL SHALL NOT BE PLACED WHEN THE SUBGRADE IS EXCESSIVELY WET, EXTREMELY DRY OR IN A CONDITION OTHERWISE DETRIMENTAL TO THE PROPOSED

INIFORM IN COMPOSITION, DRY AND FREE—FLOWING. MULCH: CLEAN HAY OR FREE

TILLAGE: THE AREA TO BE GRASSED SHALL BE THOROUGHLY TILLED TO A DEPTH OF FOUR INCHES USING A PLOW AND DISC HARROW OR ROTARY TILLING MACHINERY UNTIL A SUITABLE BED HAS BEEN PREPARED AND NO CLODS OR CLUMPS REMAIN LARGER THAN

APPLICATION OF LIME: THE PH OF THE SOIL SHALL BE DETERMINED. IF THE PH IS BELOW 5.0, SUFFICIENT LIME SHALL BE ADDED TO PROVIDE A PH BETWEEN 5.5 AND 6.5. THE LIME SHALL BE THOROUGHLY INCORPORATED INTO THE TOP THREE TO FOUR INCHES OF THE SOIL. LIME AND FERTILIZER MAY BE APPLIED IN ONE OPERATION.

APPLICATION OF FERTILIZER: FERTILIZER SHALL BE APPLIED AT THE RATE OF 6 POUNDS PER 1,000 SQUARE FEET AND SHALL BE THOROUGHLY INCORPORATED INTO THE TOP THREE TO FOUR INCHES OF SOIL.

ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE SEEDED AS SPECIFIED HEREIN, IMMEDIATELY BEFORE SEEDS ARE SOWN AND AFTER FERTILIZER AND LIME ARE APPLIED, THE GROUND SHALL BE SCARIFIED AS NECESSARY AND SHALL BE RAKED UNTIL HE SURFACE IS SMOOTH, FRIABLE, AND OF UNIFORMLY FINE TEXTURE. AREAS TO BE GRASSED SHALL BE SEEDED EVENLY WITH A MECHANICAL SPREADER, RAKED LIGHTLY, ROLLED WITH A 200-POUND ROLLER, AND WATERED WITH A FINE SPRAY.

SEEDS SHALL BE APPLIED AT THE FOLLOWING RATE:

SEEDS RATE OF APPLICATION BERMUDA 6 LBS./1000 SQ.FT.

SEEDED AREAS SHALL BE MULCHED AT THE RATE OF NOT LESS THAN 1-1/2" LOOSE MEASUREMENT OVER ALL SEEDED AREAS. SPREAD BY HAND, BLOWER, OR OTHER SUITABLE EQUIPMENT. MULCH SHALL BE CUT INTO THE SOIL WITH EQUIPMENT CAPABLE OF CUTTING THE MULCH UNIFORMLY INTO THE SOIL. MULCHING SHALL BE DONE WITHIN 24 OURS OF THE TIME SEEDING IS COMPLETED.

AFTER SEEDING AND MULCHING, A CULTIPACKER, TRAFFIC ROLLER, OR OTHER SUITABLE EQUIPMENT SHALL BE USED FOR ROLLING THE GRASSED AREAS. AREAS SHALL THEN BE WATERED WITHIN A FINE SPRAY. ALL AREAS TO BE GRASSED SHALL BE PROTECTED AGAINST EROSION AT ALL TIMES. FOR PROTECTION DURING WINTER MONTHS (NOVEMBER 1ST THRU MARCH 31ST) ITALIAN RYE GRASS SHALL BE PLANTED AT A RATE OF FOUR POUNDS PER 1,000 SQUARE FEET ON ALL AREAS WHICH ARE NOT PROTECTED BY PERMANENT GRASS.

**SEEDING DETAIL** 

PERMIPORTORS ONLY

Alan W. Kirkland, P.E. PROFESSIONAL ENGINEER FL LC # 61729

## **CONSTRUCTION DETAILS** MIRACLE POINTE SUBDIVISION

MIDDLE BEACH ROAD PANAMA CITY BEACH, FLORIDA

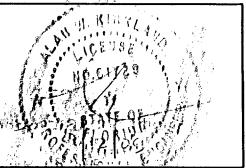
SCALE: SHOWN designed by: RLC DRAWN BY: WCK REVIEWED BY: RLC ISSUE DATE: 15FEB05 CF/D: 60201E02

M<sup>C</sup>NEIL-ENGINEERING, INC.

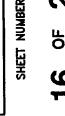
416 Jenks Avenue Panama City, Florida 32401 Phone: 850-763-5730 Fax: 850-763-5744

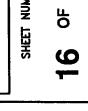
Professional Engineering Consultants STATE OF FLORIDA CERTIFICATE OF AUTHORIZATION NUMBER: 7288

NO. DATE BY REVISIONS NOT RELEASED FOR CONSTRUCTION BY:



S





**TOP VIEW** 

1/4 " STEEL PLATE -SKIMMER OR

ENVIRO GLASKIMMER

✓ GRATE

TOP OF INLET

CHEDULE

SIDE VIEW

SITE DRAINAGE

OFF-SITE AND ON-SITE WORK INCLUDED CONSISTS OF BUT IS NOT LIMITED TO THE EXCAVATION, BEDDING, FILTER MATERIAL AND BACKFILL FOR ALL STORM SEWER, SUBSURFACE DRAINS AND DRAINAGE STRUCTURES. COMPLETE INSTALLATION OF ALL STORM SEWERS, SUBSURFACE DRAINS, CATCH BASINS, JUNCTION BOXES, MANHOLES, ETC., INCLUDING ALL RELATED FITTINGS, JOINTS COVERS, GRATES, FRAMES, RUNGS, ETC.

ANY WORK WITHIN STREET OR HIGHWAY RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GOVERNMENTAL AGENCIES HAVING JURISDICTION AND SHALL NOT BEGIN UNTIL ALL OF THESE GOVERNING AUTHORITIES HAVE BEEN NOTIFIED. POLYVINYL CHLORIDE (PVC), FOR PIPE UP TO AND INCLUDING TEN INCHES (10") IN DIAMETER, SHALL CONFORM TO ASTM D3034 SDR 35 WITH ELASTOMERIC GASKET JOINTS

REINFORCED CONCRETE PIPE, FOR PIPE TWELVE INCHES (12"0) IN DIAMETER AND UP, SHALL CONFORM TO ASTM C-76, CLASS IV OR AASHO M-170 WITH BELL AND SPIGOT OR TONGUE AND GROOVE COMPRESSION JOINT CONFORMING TO ASTM C-443. MANHOLES, CATCH BASINS, ETC. SHALL BE SIZE AND TYPE INDICATED ON THE DRAWINGS AND SHALL BE CONSTRUCTED OF THE FOLLOWING: REINFORCED PRECAST CONCRETE MANHOLE SECTIONS INCLUDING CONCENTRIC OR ECCENTRIC CONES AND GRADE RINGS SHALL BE 4000 PSI CONCRETE AND CONFORM TO ASTM C478 OR AASHO M-199. SECTIONS SHALL BE COMPLETE WITH 3/4" ROUND CAST

IN PLACE WROUGHT IRON STEPS. BRICK SHALL BE SOUND, HARD BURNED THROUGHOUT AND OF UNIFORM SIZE AND QUALITY AND SHALL BE IN ACCORDANCE WITH ASTM C-32, GRADE MS OR MM. IRON CASTINGS SHALL CONFORM TO ASTM A-48, CLASS 30. BEARING SURFACES BETWEEN

CONCRETE MASONRY SHALL BE SOLID PRECAST SEGMENTAL CONCRETE MASONRY UNITS CONFORMING TO ASTM C-139. CAST IRON FRAMES, COVERS AND GRATES SHALL BE MACHINED, FITTED TOGETHER AND MATCH MARKED TO PREVENT ROCKING.

SYSTEM IDENTIFYING LETTER 2" HIGH SHALL BE STAMPED OR CAST INTO ALL COVERS

SO THAT THE MAY BE PLAINLY VISIBLE. CASTINGS SHALL BE MANUFACTURED BY EAST JORDAN IRON WORKS, INC. NEENAH FOUNDRY COMPANY, VULCAN FOUNDRY COMPANY OR EQUAL. MANHOLE STEPS FOR BRICK OR CONCRETE MASONRY STRUCTURES SHALL BE CAST IRON ASPHALT COATED, NEENAH FOUNDRY COMPANY "R-1980-E" OR EQUAL. CONCRETE AND MASONRY MATERIALS FOR CONSTRUCTION OF STORM DRAINAGE STRUCTURES SHALL CONSIST OF THE FOLLOWING: PORTLAND CEMENT SHALL BE STANDARD BRAND CF PORTLAND CEMENT CONFORMING TO ASTM C-150, TYPE I OR II.

FINE AND COARSE AGGREGATES FOR CONCRETE SHALL BE PER ASTM C-33. AGGREGATES SHALL BE WELL GRADED FROM FINE TO COARSE WITHIN LIMITS SPECIFIED IN ASTM C-33. MAXIMUM SIZE OF COARSE AGGREGATE SHALL BE 3/4". AGGREGATE FOR CEMENT MORTAR SHALL BE CLEAN, SHARP SAND CONFORMING TO ASTM C-144. GRADE SAND FROM COARSE TO FINE WITH 100% PASSING NO. 8 SIEVE, AND NOT OVER 10 TO 30% PASSING NO. 50 SIEVE. HYDRATED LIME SHALL COMPLY WITH ASTM C-207, TYPE S. WATER SHALL BE CLEAN AND FREE FROM DELETERIOUS MATERIALS.

ALL MATERIAL USED FOR CONCRETE AND THE DESIGN OF ALL CONCRETE MIXES SHALL CONFORM WITH THE RECOMMENDATIONS OF THE AMERICAN CONCRETE INSTITUTE

ALL CONCRETE, UNLESS NOTED OTHERWISE, SHALL DEVELOP A 28-DAY COMPRESSIVE STRENGTH OF 3000 PSI.

JOINT SEALANT SHALL BE HOT LAID BITUMINOUS SEALER. RIPRAP SHALL BE SOUND, TOUGH DURABLE ROCK OR BROKEN CONCRETE AS APPROVED BY

THE GEOTECHNICAL ENGINEER. RIPRAP SHALL BE AT LEAST EIGHT INCH (8") IN ONE DIMENSION AN SHALL HAVE A VOLUME OF NOT LESS THAN J1/3 CUBIC FOOT. SMALLER

REINFORCING STEEL FOR CONCRETE SHALL BE INTERMEDIATE GRADE NEW BILLET STEEL CONFORMING TO ASTM A-615, GRADE 40. WELDED WIRE MESH SHALL CONFORM TO ASTM DESIGNATION A185 FOR SMOOTH WIRE AND ASTM A497 FOR DEFORMED WIRE. FORMS FOR FOUNDATIONS AND OTHER CONCRETE WORK SHALL BE WOOD. FORMS SHALL BE OF SUFFICIENT STRENGTH TO PREVENT DEFORMATION UNDER LOAD AND TIGHT ENOUGH TO PREVENT LEAKAGE. FOUNDATIONS MAY BE POURED AGAINST EARTH WHERE CONDITIONS

ALL REINFORCEMENT SHALL BE FABRICATED AND PLACED IN ACCORDANCE WITH ACI 318-77. WELDED WIRE MESH SHALL BE LAPPED 6-INCHES AT ALL EDGES. THE MIXING, PLACING, CURING AND FINISHING OF CONCRETE SHALL COMPLY WITH AC 304 AND ACI 318. ALL EXPOSED SURFACES SHALL BE GIVEN A HARD STEEL TROWELED FINISH WITH NOT TROWEL MARKS REMAINING. NO CEMENT SHALL BE DUSTED ON THE SURFACE. ALL CONCRETE SHALL BE CURED BY COASTING WITH A CLEAR CURING NO CEMENT CONFORMING TO ASTM C-304, OR BY KEEPING IT WET FOR AT LEAST SIX DAYS AFTER POURING. AFTER THE FORMS ARE STRIPPED, ALL EXPOSED CONCRETE SURFACES

CONCRETE, UNLESS OTHERWISE NOTED, SHALL HAVE COMPRESSIVE STRENGTH AFTER 28 DAYS OF 3000 PSI MINIMUM. MIX SHALL BE SO PROPORTIONED TO PROVIDE A MINIMUM OF 517 POUNDS OF CEMENT PER CUBIC YARD.

CONCRETE FILL BELOW GRADE FOR PIPE CRADLES ETC. MAY BE 2500 PSI AT 28 DAYS. CONCRETE, WHERE EXPOSED TO THE WEATHER, SHALL BE AIR ENTRAINED. AIR ENTRAINMENT SHALL BE ACCOMPLISHED BY THE USE OF ADDITIVES CONFORMING TO ASTM C-260. AIR CONTENT SHALL BE 6% + 1%. ADDITIVE SHALL BE USED STRICTLY

IN ACCORDANCE WITH MANUFACTURER'S PRINTED DIRECTIONS. READY-MIX CONCRETE SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-94.

CEMENT MORTAR SHALL BE AS SPECIFIED HEREINAFTER. USE METHODS OF MIXING MORTAR MATERIALS CAN BE CONTROLLED AND ACCURATELY MAINTAINED DURING WORK PROGRESS. MORTAR SHALL NOT BE MIXED IN GREATER QUANTITIES THAN SATISFACTORY WORKABILITY. RETEMPERING OF MORTAR IS NOT PERMITTED. MORTAR FOR LAYING BRICK OR CONCRETE MASONRY UNITS SHALL CONFORM TO ASTM C-270, Type M, average compressive strength 2500 at 28 days. Mortar MIX Shall BE

MORTAR FOR PARGING SHALL CONSISTS OF ONE PART PORTLAND CEMENT AND TWO PARTS

MORTAR FOR GROUTING OF RIPRAP SHALL CONSIST OF ONE PART PORTLAND CEMENT AND THREE PARTS SAND.

STORMWATER SEWERS:

STORM SEWERS SHALL BE INSTALLED IN LOCATIONS AND OF SIZES INDICATED ON LAY PIPE, EMBED IT FIRMLY TO REQUIRED LINE AND GRADE WITH BELLS OF GROOVE END UP-GRADE. FIT ENDS TOGETHER, EXCAVATE BELL HOLES SO THAT SEWER WILL HAVE SMOOTH AND UNIFORM INVERT THROUGHOUT ITS LENGTH.

CORRUGATED METAL PIPE SHALL BE PLACED ON A FLAT BOTTOM TRENCH WITH HAUNCHES SOLIDLY SUPPORTED BY TAMPED BEDDING MATERIAL.

WHERE GROUND IS FOUND UNSUITABLE TO SUPPORT PIPE, PROVIDE CONCRETE CRADLES. DEPOSIT CONCRETE FULL WIDTH OF TRENCH 4" DEEP MINIMUM TO BOTTOM OF PIPE, REINFORCE CONTINUOUSLY WITH TWO (2) NO. 4 REINFORCING BARS. BEFORE CONCRETE IS SET, EMBED PIPE EVENLY, DEPOSIT REMAINDER OF CONCRETE TO CENTERLINE OF PIPE AND TAMP IN A MANNER TO AVOID DISTURBING PIPE.

WHERE STORM SEWER CROSSES A SANITARY SEWER OR WATER LINE AND THE STORM SEWER IS WITHIN ONE AND A HALF (1-1/2) FEET OF THE SANITARY SEWER PIPE OR WATER LINE, THE INTERSECTION OF THE PIPE OR LINE SHALL BE EMBEDDED IN CONCRETE FOR A DISTANCE OF FIVE FEET (5') EACH WAY FROM CENTERLINE OF INTERSECTION. PROVIDE POURED CONCRETE FOUNDATIONS FOR DRAINAGE STRUCTURES. PRECAST CONCRETE BASE MAY BE USED WHERE APPROVED BY THE GLOTECHNICAL ENGINEER.

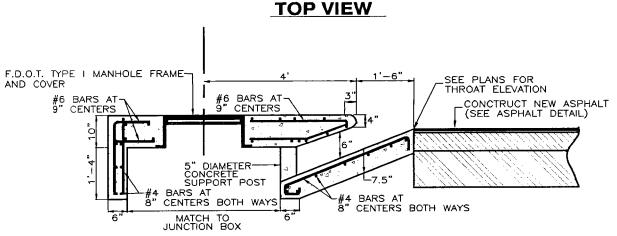
PRECAST CONCRETE BASE MUST BE SET LEVEL ON SAND CUSHION OF NOT LESS THAN 2" MANHOLES AND CATCH BASINS SHALL BE CONSTRUCTED OF BRICK, CONCRETE MASONRY OR PRECAST CONCRETE WITH CAST IRON FRAMES, COVERS AND MANHOLE STEPS, AS INDICATED ON DRAWINGS AND SPECIFIED HEREIN.

RIPRAP SHALL BE LAID OVER FILTER FABRIC FROM THE BOTTOM UPWARD, STONES SHALL BE LAID BY HAND WITH EIGHT (8") INCH MINIMUM DIMENSION PERPENDICULAR TO GRADE WITH WELL BROKEN JOINTS, COMPACTED AS IT GOES, TRUE TO LINE. ALL JOINTS SHALL BE FILLED WITH CEMENT MORTAR SURFACE OF STONE TO BE EXPOSED. CLEAN JOINTS WITH COST DRIEST.

BEFORE BACKFILLING AROUND DRAINAGE STRUCTURES, ALL FORMS, TRASH AND DEBRIS SHALL BE REMOVED AND CLEARED AWAY. SELECTED EXCAVATED MATERIAL SHALL BE PLACED SYMMETRICALLY ON ALL SIDES IN EIGHT INCH (8") MAXIMUM LAYERS; EACH LAYER SHALL BE MOISTENED AND COMPACTED WITH MECHANICAL OR HAND TAMPERS.

INFILTRATION OF THE STORM DRAINAGE SYSTEM SHALL NOT EXCEED 0.60 GALLONS PER INCH OF INTERNAL PIPE DIAMETER PER ONE HUNDRED FEET (100') OF PIPELINE PER HOUR WITH A MAXIMUM HYDROSTATIC HEAD AT THE CENTER LINE OF THE PIPE OF TWENTY FIVE FEET (25'), OR AS REQUIRED BY GOVERNING CODE AUTHORITIES.

CATCH BASIN FRAMES AND GRATINGS: ASPHALT COATED GREY CAST IRON, ANSI/ASTM A IT IS THE CONTRACTOR'S RESPONSIBILITY TO SUPPLY ALL MATERIALS NECESSARY TO COMPLETE DRAINAGE.



NOTES.

1. THE FINISHED GRADE AND SLOPE OF THE INLET TOPS ARE TO CONFORM
WITH THE FINISHED CROSS SLOPE AND GRADE OF THE PROPOSED SIDEWALK AND/OR BORDER.

2. WHEN INLETS ARE TO BE CONSTRUCTED ON A CURVE REFER TO THE PLANS TO DETERMINE THE RADIUS AND WHERE NECESSARY MODIFY THE INLET DETAILS ACCORDINGLY. BEND STEEL WHEN NECESSARIES. 3. ALL STEEL IN INLET TOPS SHALL HAVE 1-1/4" MINIMUM COVER UNLESS OTHERWISE NOTED. INLET

TOPS SHALL BE EITHER CAST IN PLACE OR PRE—CAST CONCRETE.

4. ONLY ROUND CONCRETE SUPPORT POST WILL BE ACCEPTABLE

FDOT TYPE 4 CURB INLET DETAIL

2' DIA. COVER 0.501

NOT TO SCALE

FDOT INLET DETAILS

RECOMMENDED MAXIMUM PIPE SIZE:

2'-4"

2" |-11" |-11" |-2" \_\_||\_-=||--2"||

3/4"

EYE BOLT SEE INDEX 201

\_ 5-3/4"

— EYE BOLT SEE INDEX 201

THESE INLETS ARE SUITABLE FOR BICYCLE AND PEDESTRIAN AREAS AND ARE TO BE USED IN DITCHES, MEDIANS AND OTHER AREAS SUBJECT TO INFREQUENT TRAFFIC LOADINGS BUT ARE NOT TO BE PLACED IN AREAS SUBJECT TO ANY HEAVY WHEEL LOADS.

2. INLETS SUJECT TO MINIMAL DEBRIS SHOULD BE CONSTRUCTED WITHOUT SLOTS. WHERE DEBRIS IS A PROBLEM INLETS SHOULD BE CONSTRUCTED WITH SLOTS. SLOTTED INLETS LOCATED WITHIN ROADWAY CLEAR ZONES AND IN AREAS ACCESSIBLE TO PEDESTRIANS SHALL HAVE TRAVERSABLE SLOTS. THE TRAVERSABLE SLOT MODIFICATION IS NOT ADAPTABLE TO INLET TYPE H. SLOTS MAY BE CONSTRUCTED AT EITHER OR BOTH ENDS AS SHOWN ON PLANS.

4. RECOMMENDED MAXIMUM PIPE SIZES SHOWN ARE FOR CONCRETE PIPE. PIPE SIZES LARGER THAN THOSE RECOMMENDED MUST BE CHECKED FOR FIT.

6. PAVEMENT TO BE USED ON INLETS WITHOUT SLOTS AND INLETS WITH NON—TRAVERSABLE SLOTS ONLY WHEN CALLED FOR IN THE PLANS; BUT REQUIRED ON ALL TRAVERSABLE SLOT INLETS. COST TO BE INCLUDED IN CONTRACT UNIT PRICE FOR INLETS. QUANTITIES SHOWN ARE FOR INFORMATION ONLY.

7. TRAVERSABLE SLOTS CONSTRUCTED IN EXISTING INLETS SHALL BE PAID FOR AS INLETS PARTIAL, AND SHALL INCLUDE THE COST FOR SLOT OPENINGS, PAVING AND ANY REQUIRED REPLACEMENT GRATES.

8. SODDING TO BE USED ON ALL INLETS NOT LOCATED IN PAVED AREAS AND PAID FOR UNDER CONTRACT & UNIT PRICE FOR SODDING, SY:

5. ALL EXPOSED CORNERS AND EDGES OF CONCRETE ARE TO CHAMFERED 3/4".

9. FOR SUPPLEMENTARY DETAILS SEE INDEX NO. 201.

3. STEEL GRATES ARE TO BE USED ON ALL INLETS WHERE BICYLCE TRAFFIC IS ANTICIPATED. STEEL GRATES ARE TO BE USED ON ALL INLETS WITH TRAVERSABLE SLOTS. EITHER CAST IRON OR STEEL GRATES MAY BE USED ON INLETS WITHOUT SLOTS WHERE BICYCLE TRAFFIC IS NOT ANTICIPATED. EITHER CAST IRON OR STEEL GRATES MAY BE USED ON ALL INLETS WITH NON-TRAVERSABLE SLOTS. SUBJECT TO THE SELECTION DESCRIBED ABOVE, WHEN ALTERNATE G GRATE IS SPECIFIED IN THE PLANS, EITHER THE STEEL GRATE, HOT DIPPED GALVANIZED AFTER FABRICATION, OR THE CAST IRON GRATE MAY BE USED, UNLESS THE PLANS STIPULATE THE PARTICULAR TYPE.

PLAN

3'-4"

I GRATE J O+

SECTION

TYPE C

4'-4"

4'-4"

GRATE -

2" CL.

3'-0"

\_\_\_\_\_

V- 1-2' 0"

5-3/4"\_\_

2'-0" WALL - 18" PIPE 3'-1" WALL - 24 PIPE

2" | 22-1- | 2-1/2"

RECOMMENDED MAXIMUM PIPE SIZE 3'-0" WALL - 24" PIPE 4'-6" WALL - 42" PIPE

2" |- 11" |-11" -| 2"

3'-4"

2"--

1 2-1/2"

1-1/2"

3/4"

<u>---||---2"</u>

STRAIGHT BARS 1-1/2" X 1/4" RETICULINE BARS 1-1/4" X 3/16" BANDS 5" X 1/4" A ---<u>4'-3"</u> 5" 4'-3" 2'-1 !5/15' \_, . . . . SECTION BB

UNPAVED

SET 3" ABOVE GRADE

FRAMES BEDDED IN MORTAR -

1'-6"MIN.

3' MAX.

THE ENGINEER AND APPROVED BY THE CITY

PAVED

9" BEDDING ROCK

CAST-IN-PLACE PRECAST MONOLITHIC CONCRETE BASE BASE

1. APPROVED CONCENTRIC CONE DESIGN MAY BE USED AS AN ALTERNATIVE.

2'-1 1/2"|2'-<u>1</u> 1/2

<del>\_ \_ \_| \_ \_</del>

MANHOLE FRAMES AND COVERS: GREY CAST IRON, ANSI/ASTM A48, CLASS 30B. BEARING SURFACES BETWEEN CAST IRON FRAMES, COVES AND GRATES SHALL BE MACHINED, FITTED TOGETHER AND MATCH MARKED TO PREVENT ROCKING. COMPLY WITH REQUIREMENTS OF FS RR—F—621 FOR TYPE AND STYLE INDICATED.

MANHOLE STEPS: ASPHALT COATED GREY CAST IRON, ANSI/ASTM A 48, CLASS 30 B, INTEGRALLY CAST INTO MANHOLE SIDEWALLS, UNLESS OTHERWISE INDICATED.

TYPE "P" JUNCTION BOX

RECOMMENIDED MAXIMUM PIPE SIZE

BAR: 1/4" X 1-1/2" X 5"

(4 REQUIRED)

2'-11" WALL - 24" PIPE 4'-0" WALL - 36" PIPE

NOT TO SCALE

SET FLUSH TO GRADE

F.D.O.T. TYPE I MANHOLE FRAME

AND COVER

-3000 PSI. CONCRETE

- STEPS 1'-4" TYP.

-FOR ADJUSTMENTS USE BRICK

( 2 COURSES OF BRICK MIN.

(DO NOT EPOXY COAT STEPS)

PER SIKES CONCRETE PIPE CO. OR EQUAL

4 COURSES OF BRICK MAX. )

. . . . . SECTION AA

TYPE V

7 SPACERS @ 2-5/16'

8 BARS @1/4"

TYPE V TWO REQUIRED PER INLET

DIA. + 1'-6"

PLAN

6'-7"

EYEBOLT ---

SEE INDEX 201

TYPE H

RECOMMENDED MAXIMUM PIPE SIZE 3'-0" WALL - 24" PIPE 7'-8" WALL - 1-66" PIPE

2-30" PIPE

THESE INLETS ARE SUITABLE FOR BICYCLE AND PEDESTRIAN AREAS AND ARE TO BE USED IN DITCHES, MEDIANS AND OTHER AREAS SUBJECT TO INFREQUENT TRAFFIC LOADINGS BUT ARE NOT TO BE PLACED

2. INLETS SUJECT TO MINIMAL DEBRIS SHOULD BE CONSTRUCTED WITHOUT SLOTS. WHERE DEBRIS IS A PROBLEM INLETS SHOULD BE CONSTRUCTED WITH SLOTS. SLOTTED INLETS LOCATED WITHIN ROADWAY CLEAR ZONES AND IN AREAS ACCESSIBLE TO PEDESTRIANS SHALL HAVE TRAVERSABLE SLOTS. THE TRAVERSABLE SLOT MODIFICATION IS NOT ADAPTABLE TO INLET TYPE H. SLOTS MAY BE CONSTRUCTED

4. RECOMMENDED MAXIMUM PIPE SIZES SHOWN ARE FOR CONCRETE PIPE. PIPE SIZES LARGER THAN THOSE RECOMMENDED MUST BE CHECKED FOR FIT.

6. PAVEMENT TO BE USED ON INLETS WITHOUT SLOTS AND INLETS WITH NON-TRAVERSABLE SLOTS ONLY WHEN CALLED FOR IN THE PLANS; BUT REQUIRED ON ALL TRAVERSABLE SLOT INLETS. COST TO BE INCLUDED IN CONTRACT UNIT PRICE FOR INLETS. QUANTITIES SHOWN ARE FOR INFORMATION ONLY.

7. TRAVERSABLE SLOTS CONSTRUCTED IN EXISTING INLETS SHALL BE PAID FOR AS INLETS PARTIAL, AND SHALL INCLUDE THE COST FOR SLOT OPENINGS, PAVING AND ANY REQUIRED REPLACEMENT GRATES

SODDING TO BE USED ON ALL INLETS NOT LOCATED IN PAVED AREAS AND PAID FOR UNDER CONTRACT UNIT PRICE FOR SODDING, SY.

FDOT INLET DETAILS

5. ALL EXPOSED CORNERS AND EDGES OF CONCRETE ARE TO CHAMFERED 3/4".

3. STEEL GRATES ARE TO BE USED ON ALL INLETS WHERE BICYLCE TRAFFIC IS ANTICIPATED. STEEL GRATES ARE TO BE USED ON ALL INLETS WITH TRAVERSABLE SLOTS. EITHER CAST IRON OR STEEL GRATES MAY BE USED ON INLETS WITHOUT SLOTS WHERE BICYCLE TRAFFIC IS NOT ANTICIPATED. EITHER CAST IRON OR STEEL GRATES MAY BE USED ON ALL INLETS WITH NON-TRAVERSABLE SLOTS. SUBJECT TO THE SELECTION DESCRIBED ABOVE, WHEN ALTERNATE G GRATE IS SPECIFIED IN THE PLANS, EITHER THE STEEL GRATE, HOT DIPPED GALVANIZED AFTER FABRICATION, OR THE CAST IRON GRATE MAY BE USED, UNLESS THE PLANS STIPULATE THE PARTICULAR TYPE.

**-- 1'-2 1/2"** 

2-1/2"

IN AREAS SUBJECT TO ANY HEAVY WHEEL LOADS.

AT EITHER OR BOTH ENDS AS SHOWN ON PLANS.

9. FOR SUPPLEMENTARY DETAILS SEE INDEX NO. 201.

J ₹ ₹ \$ H

SIDE SLOPE OF POND------ALUMINUM SKIMMER-0.5' MIN. -OUTFALL STRUCTURE ELEV. 3 EL. 20.25 NORTH 6" SDR-21 PVC-PERMANENT POOL ELEVATION-90" ELBOW---ELEV. 16.00 0.5' MIN. PVC CAP WITH ORIFICE HOLE (2.30" DIA) EL. 15.5 ---18" RCP PIPE EL. 12.47

1. SEE OUTFALL STRUCTURE SCHEDULE FOR FOR SLOT, ORIFICE, STRUCTURE, AND OUTFALL PIPE SIZES AND ELEVATIONS.

2. SEE INLET DETAIL FOR OUTFALL INLET CONSTRUCTION. 3. SEE POND SECTION FOR REQUIRED WETLAND PLANTINGS ON LITTORAL SHELF. \*4. APPROXIMATE ELEVATION. FIELD ADJUSTMENTS MAYBE NECESSARY.

**DS-29 OUTFALL STRUCTURE DETAIL** 

Alan W. Kirkland, P.E. PROFESSIONAL ENGINEER

> **CONSTRUCTION DETAILS** MIRACLE POINTE SUBDIVISION MIDDLE BEACH ROAD PANAMA CITY BEACH, FLORIDA

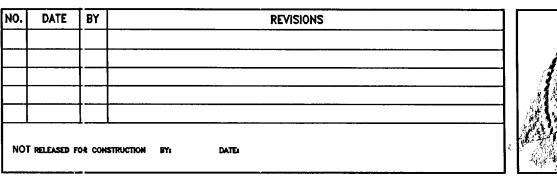
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*M<sup>c</sup>NEIL*-*—CARROLI* ENGINEERING, INC.

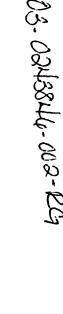
416 Jenks Avenue Panama City, Florida 32401 Phone: 850-763-5730 Fax: 850-763-5744

FL LC # 61729

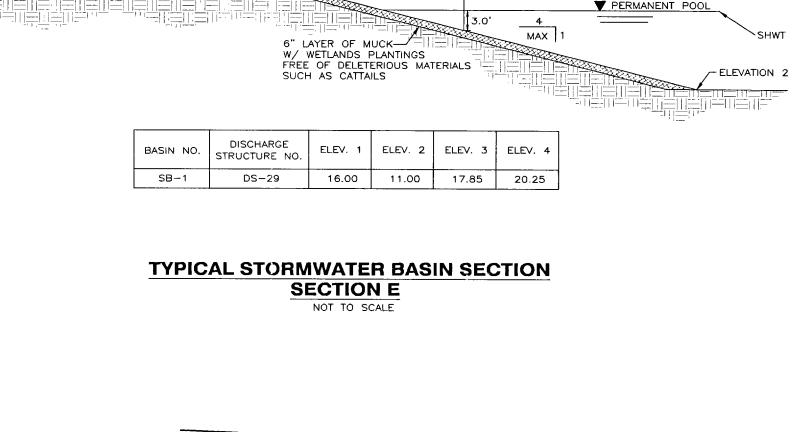
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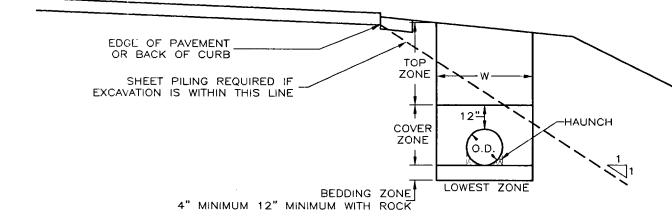


LITTORAL ZONE

ELEVATION 4

DISTANCE VARIES SODDED

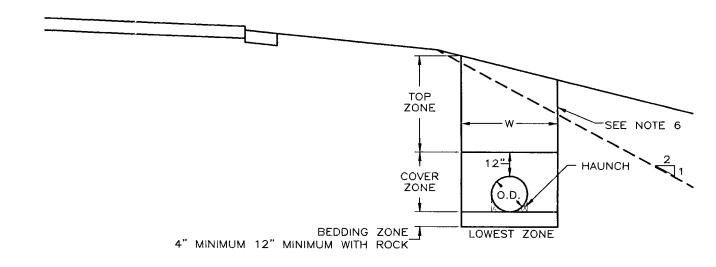
POND BOTTOM



EXISTING GRADE-

ELEVATION 1 - - - - - -

#### **INSIDE ROADWAY SHOULDER AREA**



#### OUTSIDE ROADWAY SHOULDER AREA, UNIMPROVED AREAS, OR AREAS OF NO VEHICULAR TRAFFIC

1. W (MAXIMUM TRENCH WIDTH) = PIPE O.D. + 30" FOR LESS THAN 24"Ø
W (MAXIMUM TRENCH WIDTH) = PIPE O.D. + 48" FOR 24"Ø OR GREATER.
DEEP TRENCHES MAY REQUIRE SLOPING SIDES OR TRENCH BOXES FOR STABILITY. 2. LOWEST ZONE — REMOVE SOIL UNSUITABLE FOR BACKFILL TO A DEPTH OF 4" MINIMUM (12" MINIMUM IN ROCK) BELOW BOTTOM OF PIPE. REMOVE MUCK OR OTHER MATERIAL TO A DEPTH NECESSARY TO ESTABLISH A FIRM FOUNDATION. BACKFILL UNDER BEDDING ZONE WITH COARSE SAND OR OTHER SUITABLE GRANULAR MATERIAL. COMPACT TO MATCH DENSITY OF SOIL IN WHICH THE TRENCH 3. BEDDING ZONE — USE A—1, A—2 OR A—3 MATERIAL (A—4 MAY BE USED WITH R.C.P.). COMPACT TO 100% OF MAXIMUM DENSITY AS DETERMINED BY AASHTO T—99, METHOD C, IN LIFTS NOT TO EXCEED 6 INCHES. WHEN PLACING PIPE, LOOSEN SOIL OR BEDDING MATERIAL IMMEDIATELY BELOW THE MIDDLE THIRD OF THE O.D. OF PIPE, THEN HAND TAMP MATERIAL BELOW HAUNCH THAT CANNOT BE REACHED BY HIRD OF THE O.D. OF PIPE, THEN HAND TAMP MATERIAL BELOW HAUNCH THAT CANNOT BE REACHED BY MECHANICAL TAMPING.

4. COVER ZONE — USE A—1, A—2 OR A—3 MATERIAL (A—4 MAY BE USED WITH R.C.P.). COMPACT TO 100% OF MAXIMUM DENSITY FOR R.C.P. OR 95% OF MAXIMUM DENSITY FOR METAL OR PLASTIC PIPE AS DETERMINED BY AASHTO T—99, METHOD C, IN LIFTS NOT TO EXCEED 6 INCHES.

5. TOP ZONE — USE MATERIALS PER F.D.O.T. INDEX 505. COMPACT TO 100% DETERMINED BY AASHTO T—99, METHOD C, IN LIFTS NOT TO EXCEED 12 INCHES OR GREATER.

6. IN AREAS OUTSIDE THE PLANE DESCRIBED BY A 1 IN 2 SLOPE DOWNWARD FROM THE EDGE OF SHOULDER OR BACK OF CURB, COMPACT TO FIRMNESS APPROXIMATELY EQUAL TO THAT OF SOIL NEXT TO PIPE TRENCH. COMPACTION REQUIREMENTS FROM F.DO.T. SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTION 125.

### TRENCHING DETAIL

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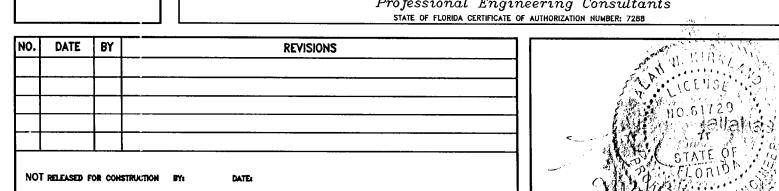
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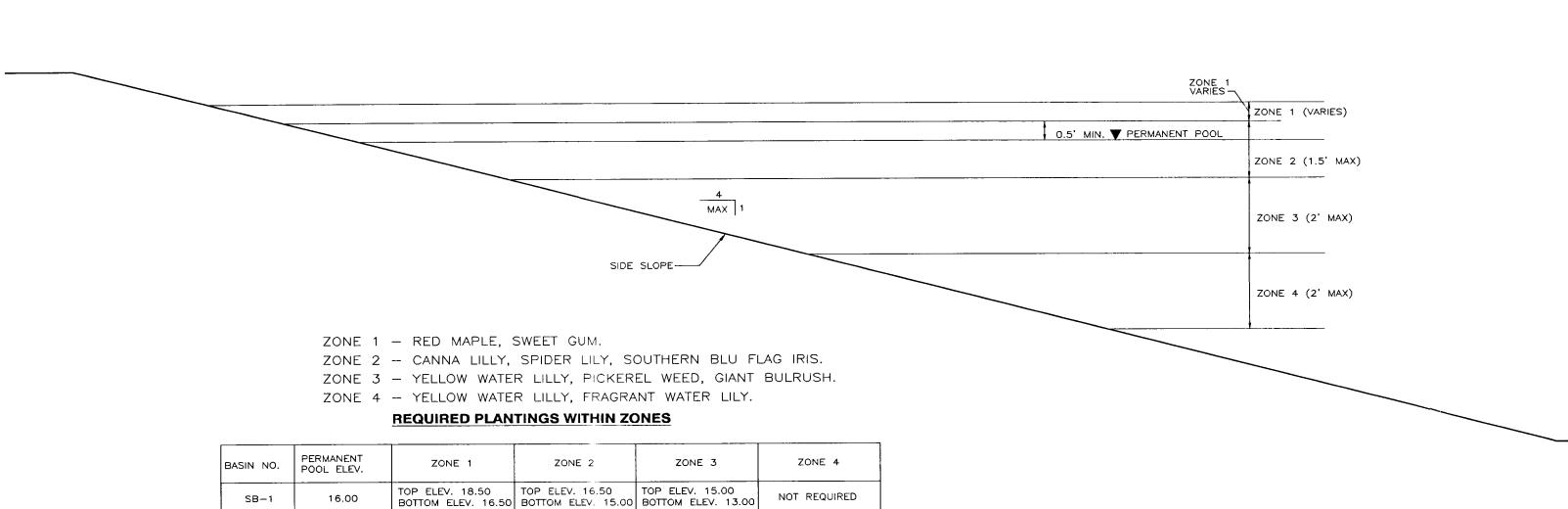
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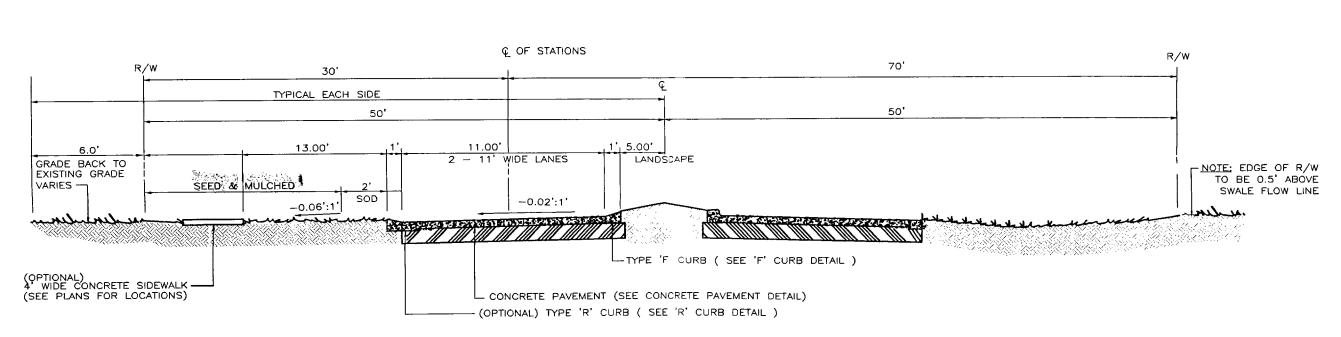




NOT REQUIRED

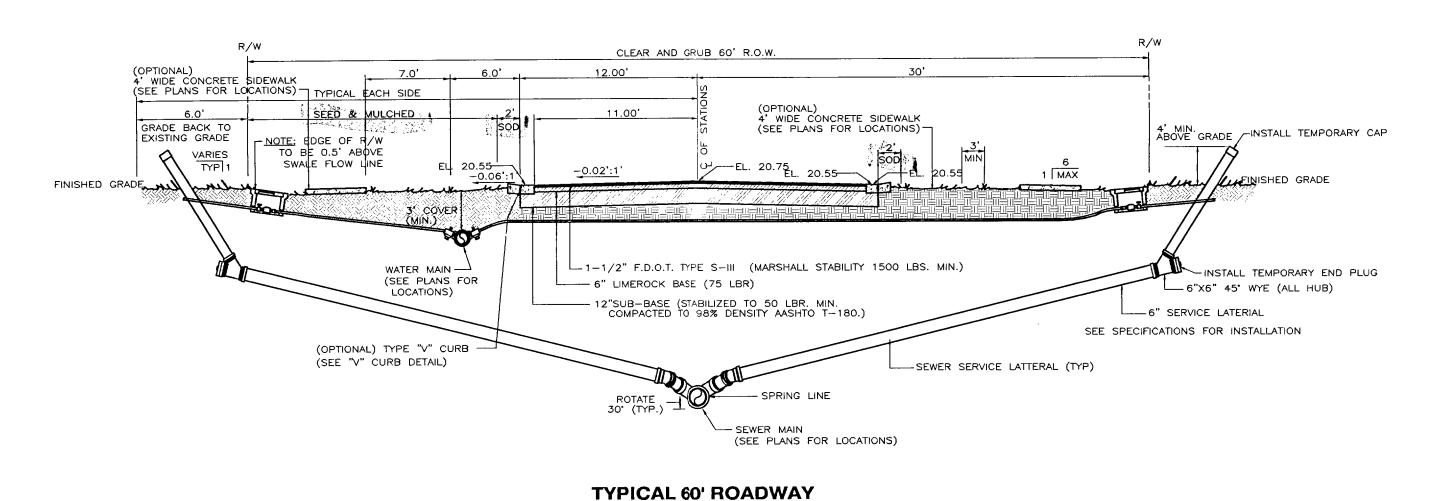
# TYPICAL LITTORAL SHELF PLANTING DETAIL

NOTE: 85% COVERAGE OF SUITABLE LITTORAL ZONE PLANTS REQUIRED WITHIN 24 MONTHS OF COMPLETION OF CONSTRUCTION AND NUISANCE SPECIES SUCH AS CAT TAILS SHALL BE REMOVED DURING ESTABLISHMENT PERIOD.



## **ENTRANCE DRIVE**

NOT TO SCALE



NOT TO SCALE