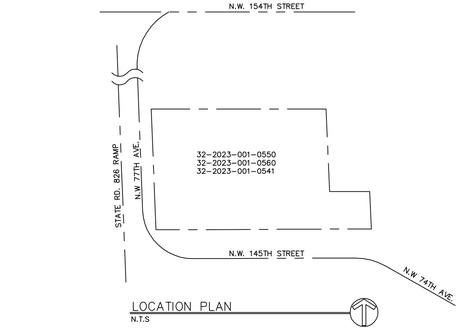


LOCATION PLAN
N.T.S

SITE NOTES:

ALL PARKING LIGHTING STRUCTURES SHALL NOT EXCEED A HEIGHT OF 14'-0" ABOVE GRADE AND SUPPORTED AT THE BASE WITH BOLTS AND GRADE LEVEL (NO AUGERED POLE SYSTEM)

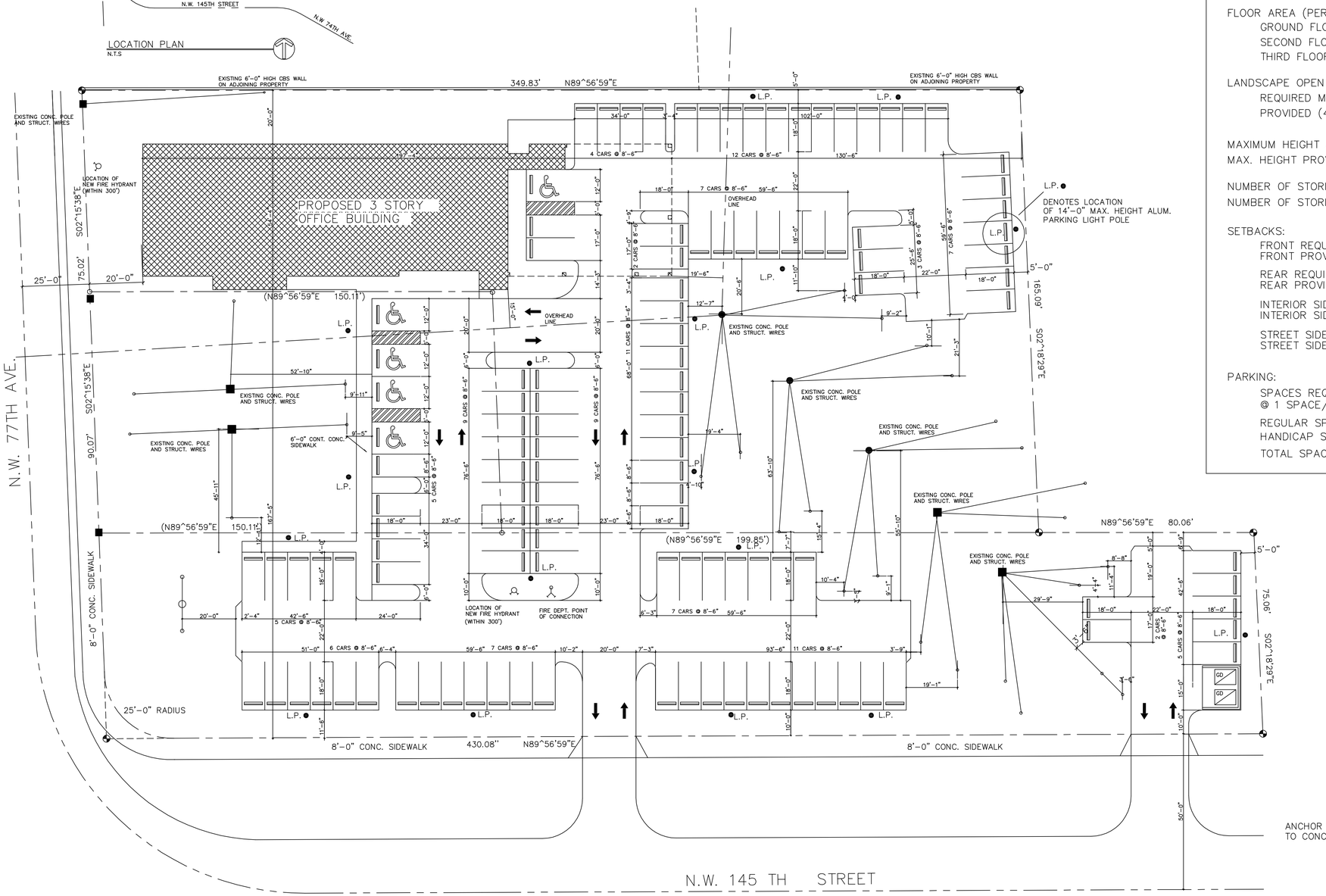
ALL LANDSCCAPE AREAS TO BE IRRIGATED AS PER FPL GUIDELINES

NO PLANTINGS OF LANDSCAPE OF ANY KIND SHALL EXCEED A MAXIMUM OF 14'-0" ABOVE FIN. GRADE

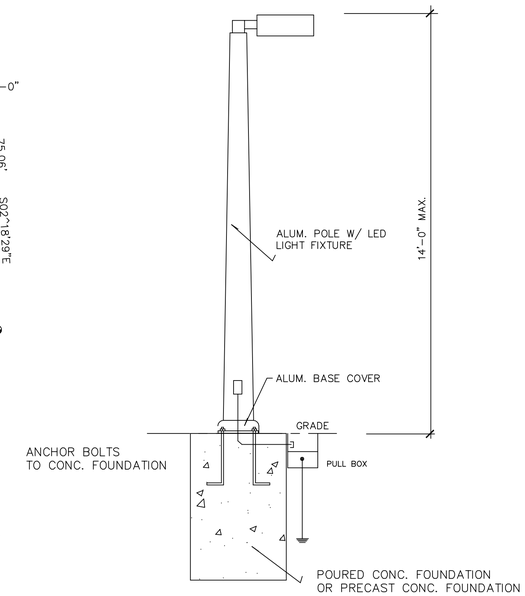
EXISTING FOLIO NUMBERS:
32-2023-001-0550
32-2023-001-0560
32-2023-001-0541

ZONING LEGEND:

CURRENT ZONING:	INTERIM USE
PROPOSED ZONING:	RO-13
NET LAND AREA:	2.07 ACRES - 90,169.20 SQFT
LOT COVERAGE:	
ALLOWED (30%):	27,050.76 SQFT
PROVIDED (11.6%):	10,535 SQFT
FLOOR AREA RATIO:	
ALLOWED (60%):	54,101.52 SQFT
PROVIDED (31.3%):	28,240 SQFT
FLOOR AREA (PER FLOOR):	
GROUND FLOOR:	7,330 SQFT
SECOND FLOOR:	10,590 SQFT
THIRD FLOOR:	10,120 SQFT
	28,040 SQFT
LANDSCAPE OPEN SPACE:	
REQUIRED MIN. (30%):	27,050.76 SQFT
PROVIDED (46.7%):	42,195 SQFT
MAXIMUM HEIGHT ALLOWED:	35'-0"
MAX. HEIGHT PROVIDED:	51'-0"
NUMBER OF STORIES ALLOW.:	2
NUMBER OF STORIES PROV.:	3
SETBACKS:	
FRONT REQUIRED:	25'-0"
FRONT PROVIDED:	20'-0" VARIANCE
REAR REQUIRED:	25'-0"
REAR PROVIDED:	130'-6"
INTERIOR SIDE REQUIRED:	15'-0"
INTERIOR SIDE PROVIDED:	20'-0" FPL EASEMENT
STREET SIDE REQUIRED:	15'-0"
STREET SIDE PROVIDED:	167'-5"
PARKING:	
SPACES REQUIRED @ 1 SPACE/ 300 SQFT	94 SPACES
REGULAR SPACES PROVIDED:	114 SPACES
HANDICAP SPACES PROVIDED:	5 SPACES
TOTAL SPACES PROVIDED:	119 SPACES



S I T E P L A N
SC: 1" = 20'-0"



FIXTURE AND POLE DETAIL
N. T. S.

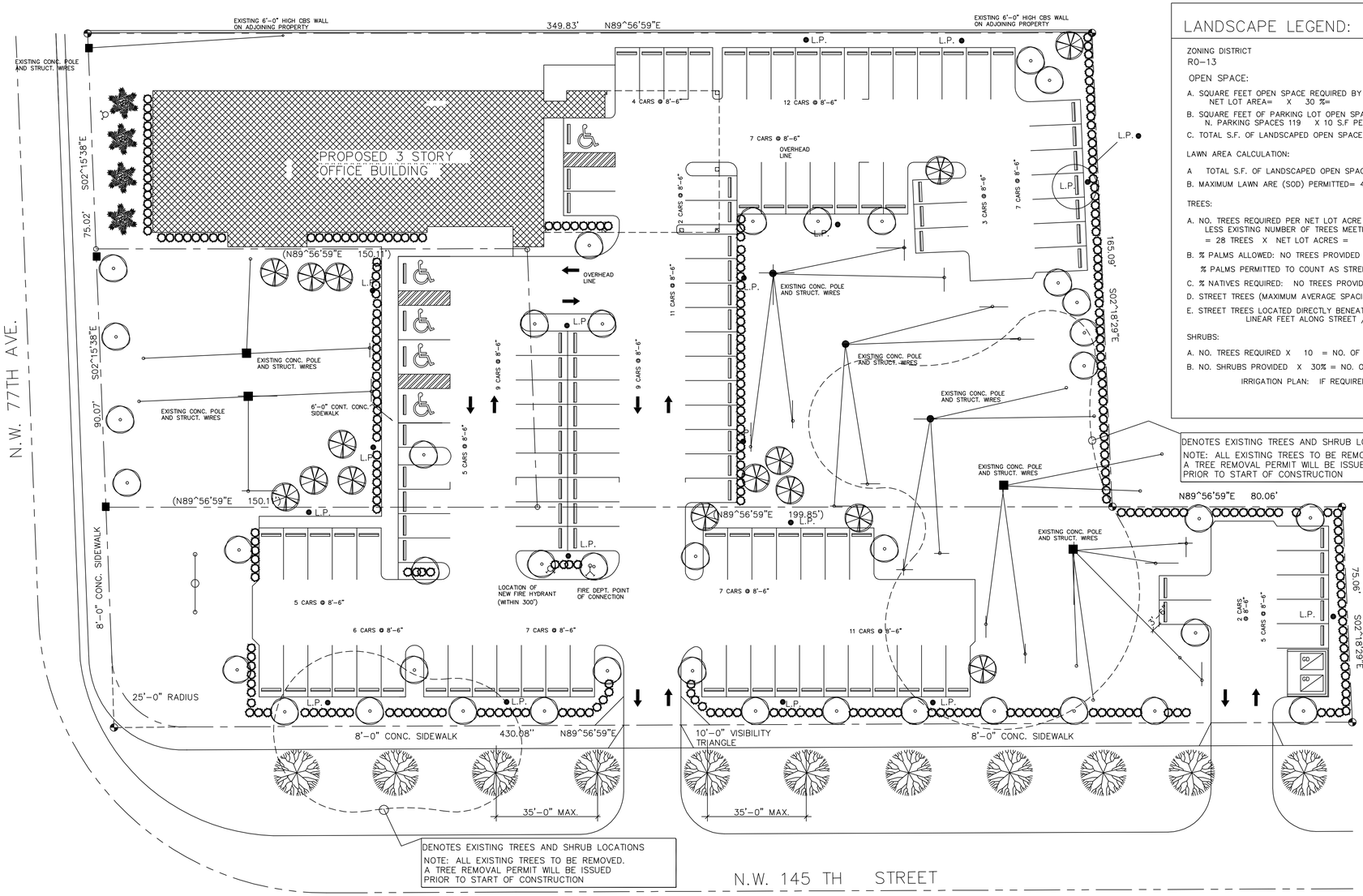
REVISIONS	BY

ALBERT O. GONZALEZ ARCHITECT, PA
16400 NW 59TH AVE. MIAMI LAKES, FLORIDA 33014
(305) 827-8933 aog@bellsouth.net AA-26003246

PROPOSED OFFICE BUILDING FOR:
ALARI HOLDINGS 1, LLC
JOB ADDRESS: 14575 NW 77th AVE.
MIAMI LAKES, FLORIDA 305-827-8933

DATE	
SCALE	
DRAWN	
JOB	
SHEET	1 OF 6

AR-0011963



LANDSCAPE LEGEND:

ZONING DISTRICT RO–13	90,169.20 SQFT	NET LOT AREA: 2.07	ACRES
OPEN SPACE:		REQUIRED	PROVIDED
A. SQUARE FEET OPEN SPACE REQUIRED BY CHAPTER 33, AS INDICATED ON SITE PLAN: NET LOT AREA= X 30 %=		27,050.76	
B. SQUARE FEET OF PARKING LOT OPEN SPACE REQUIRED BY CHAPTER 18A, AS INDICATED ON SITE PLAN: N. PARKING SPACES 119 X 10 S.F PER PARKING SPACE=		1,190 SQFT	
C. TOTAL S.F. OF LANDSCAPED OPEN SPACE REQUIRED BY CHAPTER 33: A X B=		28,240.76	42,195 SQFT
LAWN AREA CALCULATION:			
A TOTAL S.F. OF LANDSCAPED OPEN SPACE REQUIRED BY CHAPTER 33 B. MAXIMUM LAWN ARE (SOD) PERMITTED= 42,195 SQFT X .30 S.F.= 12,658 SQFT		12,658	12,650
TREES:			
A. NO. TREES REQUIRED PER NET LOT ACRE LESS EXISTING NUMBER OF TREES MEETING MINIMUM REQUIREMENTS = 28 TREES X NET LOT ACRES =		58	64
B. % PALMS ALLOWED: NO TREES PROVIDED X 30% = 17 % PALMS PERMITTED TO COUNT AS STREET TREES ON 1:1 BASIS X 30% = 34		17	4
C. % NATIVES REQUIRED: NO TREES PROVIDED X 30% =			
D. STREET TREES (MAXIMUM AVERAGE SPACING OF 35' O.C.): LINEAR FEE ALONG STREET / 35=		11	11
E. STREET TREES LOCATED DIRECTLY BENEATH POWER LINES (MAXIMUM AVERAGE SPACING OF 25' O.C.): LINEAR FEET ALONG STREET / 25 =			
SHRUBS:			
A. NO. TREES REQUIRED X 10 = NO. OF SHRUBS ALLOWED		580	640
B. NO. SHRUBS PROVIDED X 30% = NO. OF NATIVE SHRUBS REQUIRED		186	190
IRRIGATION PLAN: IF REQUIRED BY CHAPTER 33			

TREE / SHRUBS LEGEND:

- LIVE OAK (STREET TREES) — 11 TREES
- CANDLEBRUSH (CASSIA ALATA) — 41 TREES
- LEMON BOTTLEBRUSH (CALLISTEMON CITRINUS) — 23 TREES
- ROYAL PALM (ROYSTONEA REGIA) — 4 TREES
- COCOPLUM HEDGE (CHRYSOBALANUS ICACO) — 640 UNITS

NOTE: NO TREES OR SHRUBS SHALL EXCEED A MAXIMUN HEIGHT OF 14'–0" AT MATURITY

LANDSCAPE PLAN

SC: 1" = 20'–0"

REVISIONS	BY

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PROPOSED OFFICE BUILDING FOR:
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MIAMI LAKES, FLORIDA 305–827–8933

DATE	
SCALE	
DRAWN	
JOB	
SHEET	2 OF 6

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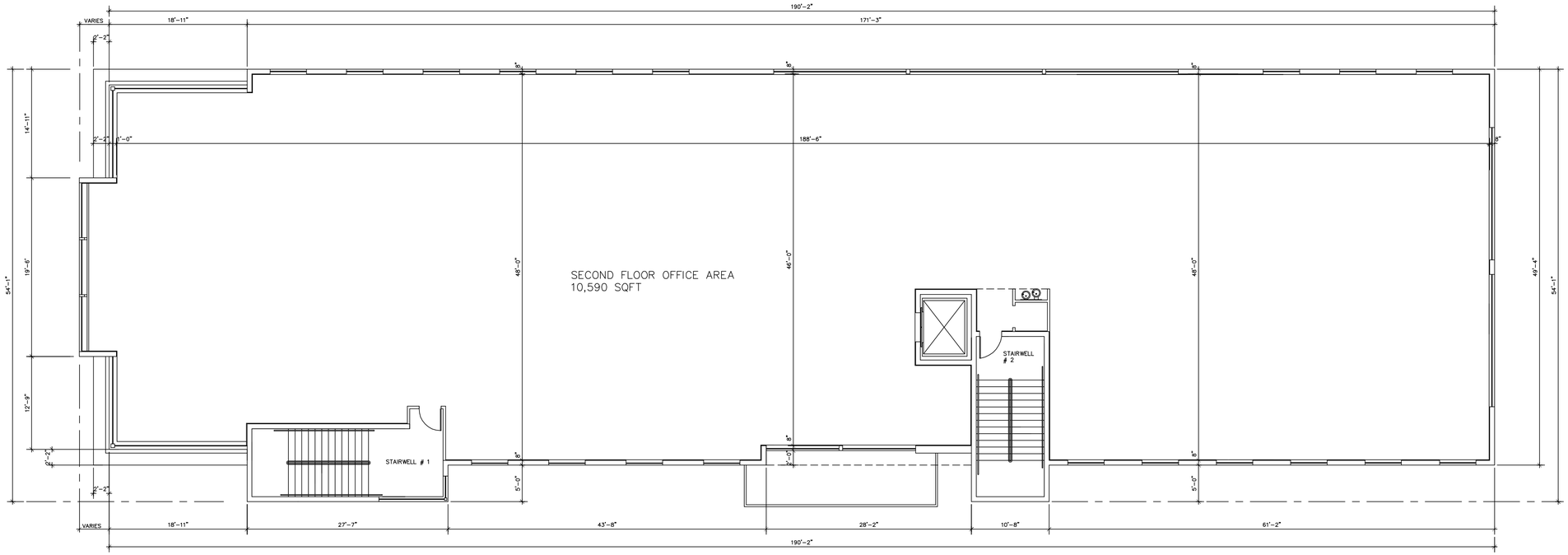
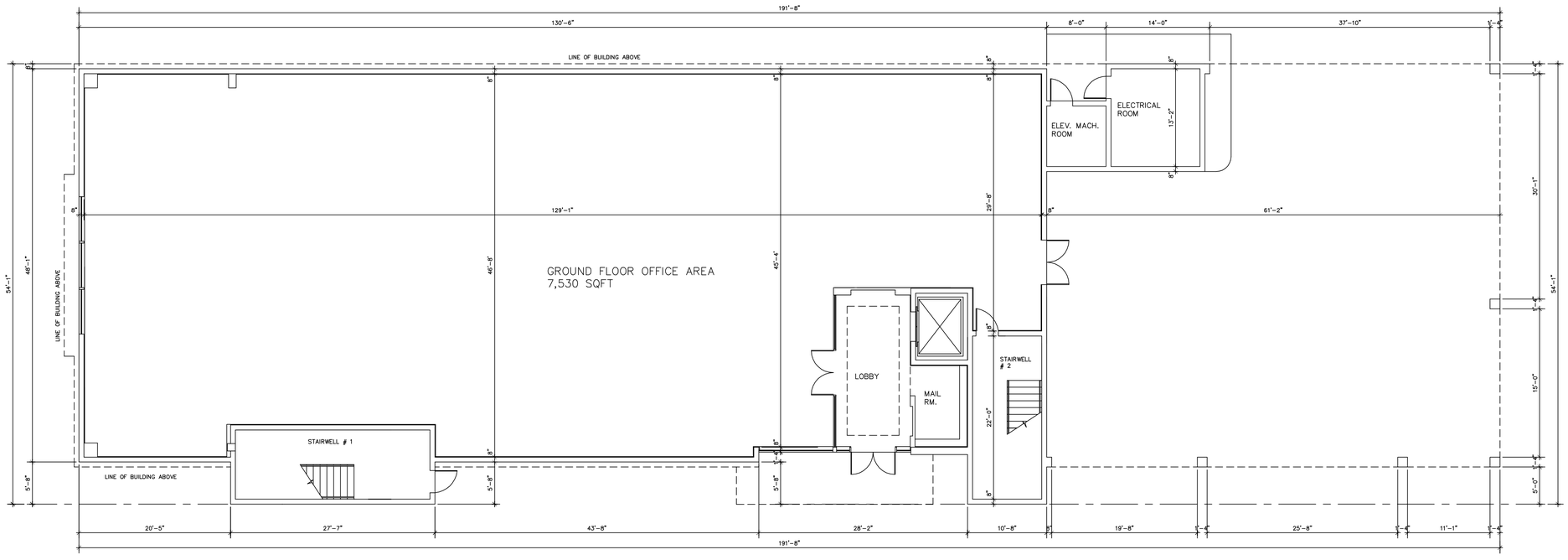


SECOND FLOOR PLAN
SC: 1/8" = 1'-0"



GROUND FLOOR PLAN
SC: 1/8" = 1'-0"

REVISIONS	BY

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(305) 827-8933 aog@bellsouth.net AA-26003246

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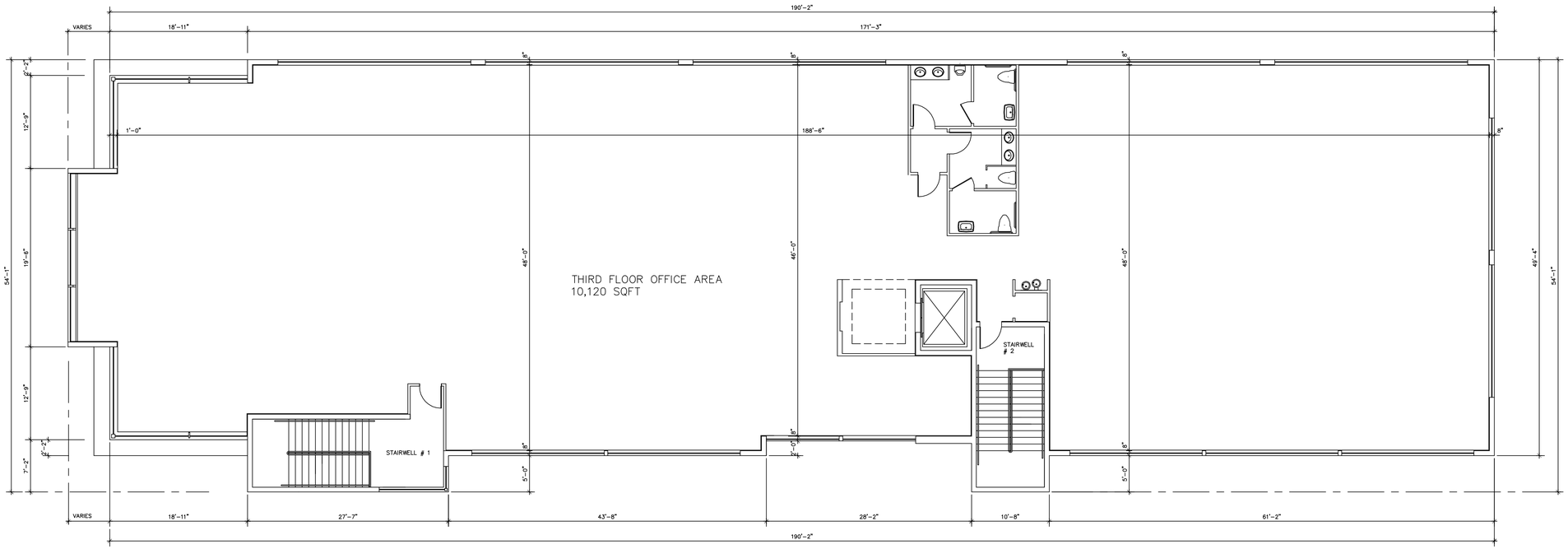
DATE	
SCALE	
DRAWN	
JOB	
SHEET	3 OF 6

AR-0011963



THIRD FLOOR PLAN
SC: 1/8" = 1'-0"

REVISIONS	BY

ALBERT O. GONZALEZ ARCHITECT, PA
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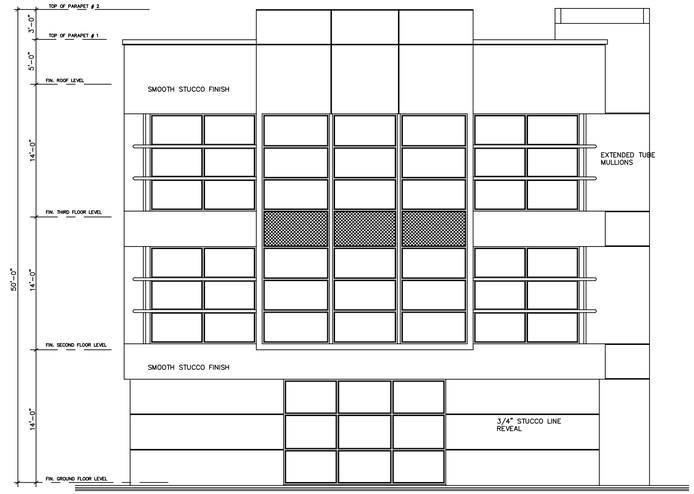
PROPOSED OFFICE BUILDING FOR:
ALARI HOLDINGS 1, LLC
JOB ADDRESS: 14575 NW 77th AVE.
MIAMI LAKES, FLORIDA 305-827-8933

DATE	
SCALE	
DRAWN	
JOB	
SHEET	4 OF 6

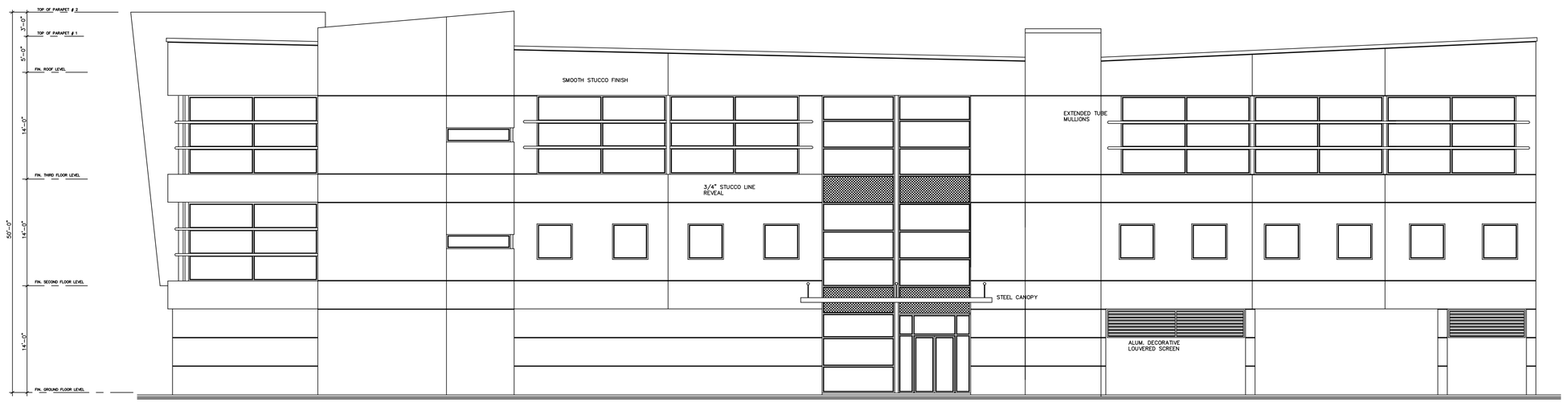
AR-0011963



W E S T – S I D E E L E V A T I O N

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

FACADE AREA: 2,685 SQFT
REQUIRED FENESTRATION AREA (30%): 806 SQFT
PROVIDED FENESTRATION AREA : 1,448 SQFT



S O U T H – S I D E E L E V A T I O N

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

FACADE AREA: 8,678 SQFT
REQUIRED FENESTRATION AREA (30%): 2,603 SQFT
PROVIDED FENESTRATION AREA : 2,640 SQFT

REVISIONS	BY

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PROPOSED OFFICE BUILDING FOR:
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MIAMI LAKES, FLORIDA 305-827-8933

DATE

SCALE

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JOB

SHEET
5 OF 6

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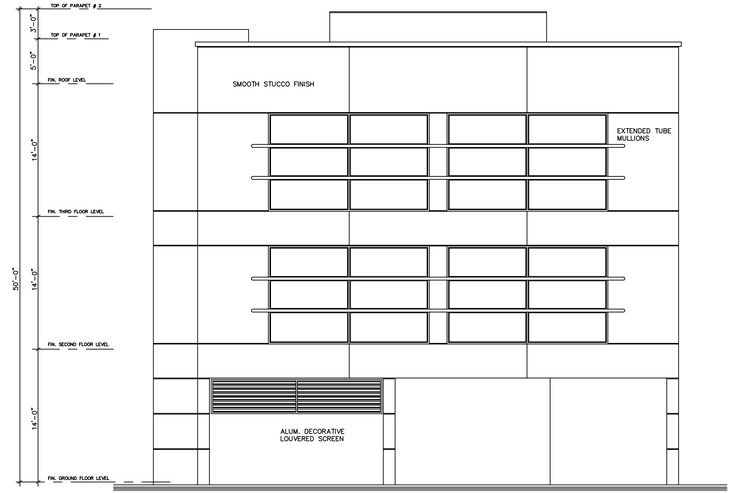
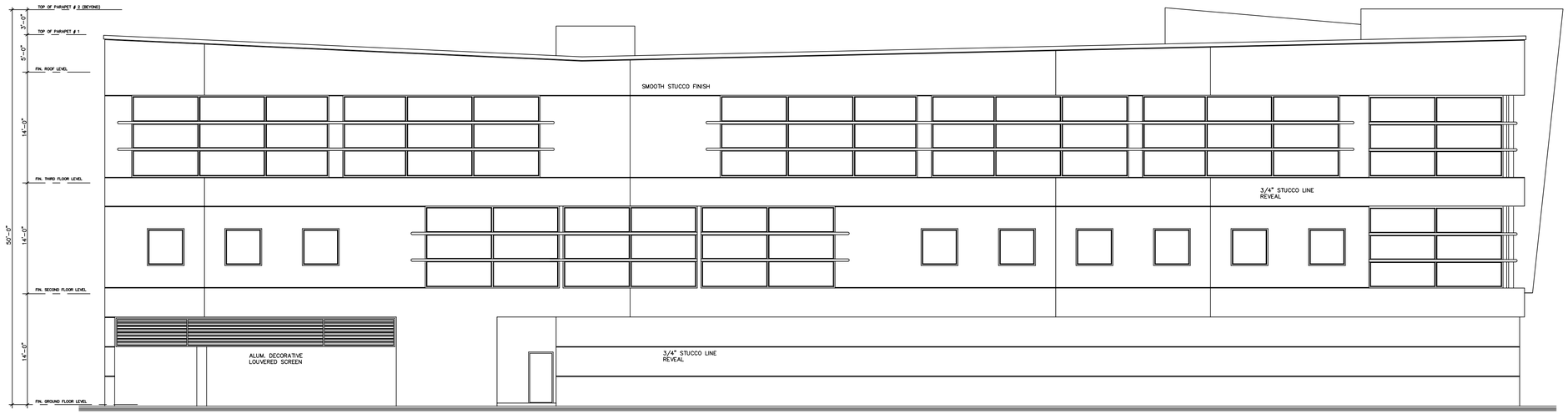


E A S T – S I D E E L E V A T I O N

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

FACADE AREA: 2,045 SQFT
REQUIRED FENESTRATION AREA (30%): 613 SQFT
PROVIDED FENESTRATION AREA : 792 SQFT



N O R T H – S I D E E L E V A T I O N

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

FACADE AREA: 8,775 SQFT
REQUIRED FENESTRATION AREA (30%): 2,632 SQFT
PROVIDED FENESTRATION AREA : 2,970 SQFT

REVISIONS	BY

ALBERT O. GONZALEZ ARCHITECT, PA
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(305) 827-8933 aog@bellsouth.net AA-26003246

PROPOSED OFFICE BUILDING FOR:
ALARI HOLDINGS 1, LLC
JOB ADDRESS: 14575 NW 77th AVE.
MIAMI LAKES, FLORIDA 305-827-8933

DATE

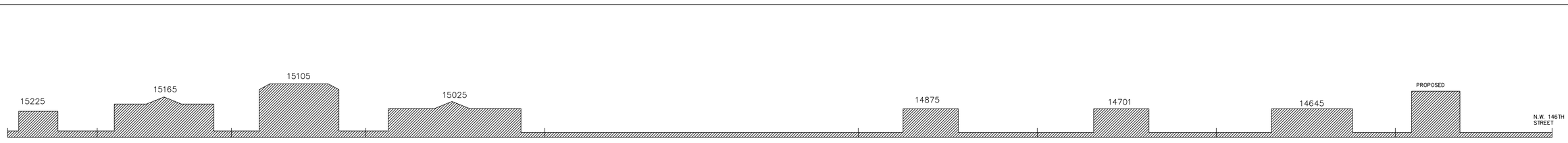
SCALE

DRAWN

JOB

SHEET
6 OF 6

AR-0011963



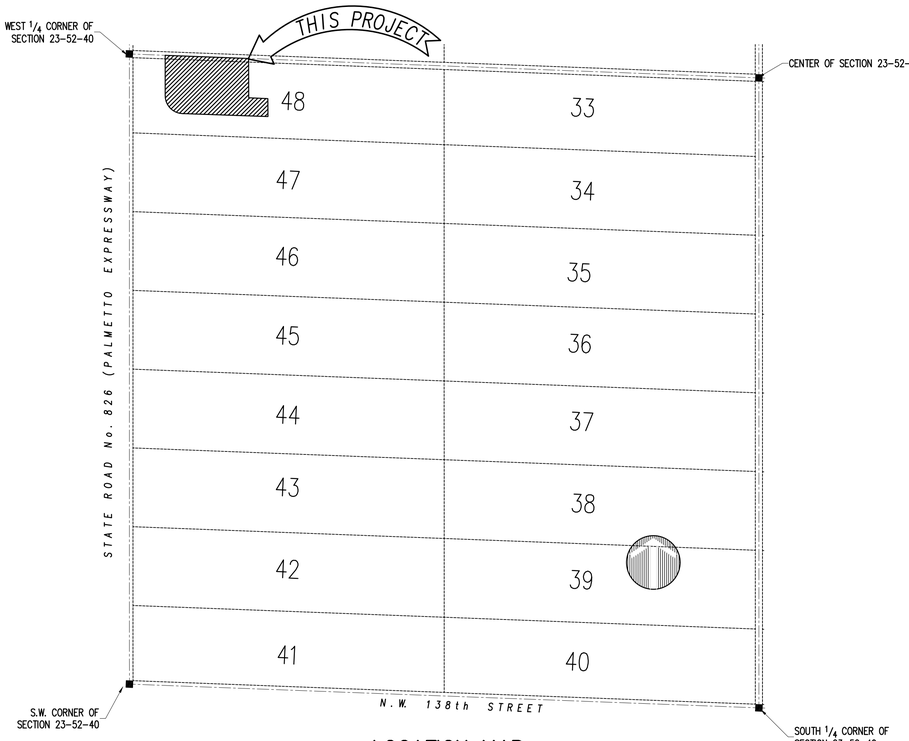
N. W. 77TH AVENUE (STREET VIEW)

GENERAL NOTES:

1) All work shall be performed in accordance with the requirements, specifications and standards of the City of Miami Lakes Public Works Dept. and D.E.R.M.
2) The plans have been prepared with the best information available to the engineer. The Engineering Contractor **MUST** notify "SUNSHINE STATE ONE-CALL OF FLORIDA", Phone No. 811 48 hours prior to start of excavation and / or construction. If any discrepancies are encountered to the extent that a "Field Revision" is required, Engineer **MUST** be notified immediately.
3) Deviations from the approved plan shall not be permitted by the Engineering Contractor without the written consent of the Engineer of Record, the City of Miami Lakes Public Works Dept. and D.E.R.M.
4) All elevations refer to the National Geodetic Vertical Datum (NGVD).
5) All existing structures and utilities shall be protected at all times during the excavation and construction. Neither the Engineer nor the Owner / Developer shall be responsible for damages resulting from the Engineering Contractor's work. All existing pavement, utilities (above & below ground), or surface features disturbed during construction shall be restored to equal or better condition by the engineering contractor in accordance with Miami-Dade County Public Works Standards and Specifications or as directed by the Engineer / Inspector.
6) Services connected with job safety are not part of this plan / contract.
7) Underground Contractor shall comply with the Trench Safety Act, HB 3183, Florida Statutes, which incorporates, but is not limited to, the following:
   a. OSHA Standard 29 C.F.R. Part 1926, Subpart P, Excavation and Trenches.
   b. Contract bids for trench excavations (in excess of 5 feet deep) shall include reference to the safety standards, written assurance of compliance, and a separate item identifying the cost of compliance.
   c. Adhere to any special shoring requirements of the state or other governmental agency.
8) All geometric layout to be performed in accordance with the approved final plat for this project.
9) Engineering Contractor shall coordinate maintenance of traffic (MOT) during construction with the Miami-Dade Public Works Department and shall meet the requirements of the State of Florida "Manual on Traffic Control and Safe Practices for Street and Highway Construction".
10) All muck, peat and / or clay with high percentage of organic material and / or existing unsuitable fill material shall be removed to natural limerock or sand within the proposed Right-of-Way or proposed pavement area (if within private property). For detailed specifications, see M-DCPWD specifications Section 30.
11) No runoff from this project shall be discharged into any adjacent property.
12) If there is any work to be done within areas privately owned (not dedicated as public right-of-way), written permission from owners of said areas shall be obtained prior to commencement of any work.
13) Asphalt pavement shall be constructed as follows:
   a. Asphaltic Concrete surface course, 1" thick (Type FC-9.5).
   b. Limerock base course, primed, 8" thick.
   c. Stabilized subgrade, 12" thick (min.).
14) Minimum Finish Floor Elevation (F.F.E.)= 9.50 (NGVD)
15) Miami-Dade County Flood Criteria: 6.50(NGVD)
16) October Water Table Elevation (per WC 2.2): 3.0 (NGVD)

ENGINEER'S NOTES:

A. All existing pavement, utilities (above & below ground), or surface features disturbed during construction of this project shall be restored to equal or better condition by the contractor in accordance with Miami-Dade County Public Works Standards and Specifications or as directed by the City of Miami Lakes Public Works Inspector.
B. Underground Contractor shall comply with the Trench Safety Act, HB 3183, Florida Statutes, which incorporates, but is not limited to, the following:
   a. OSHA Standard 29 C.F.R. Part 1926, Subpart P, Excavation and Trenches.
   b. Contract bids for trench excavations (in excess of 5 feet deep) shall include reference to the safety standards, written assurance of compliance, and a separate item identifying the cost of compliance.
   c. Adhere to any special shoring requirements of the state or other governmental agency.
C. Engineer is not responsible for the safety of the excavation or design and construction of any shoring.
D. **All existing utilities and features (above and below ground) have been shown in accordance with the best available information, utility atlases and records obtained by Developer. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE TO VERIFY THE LOCATION OF ALL UTILITIES AND FEATURES (ABOVE AND BELOW GROUND) WHETHER SHOWN OR NOT, AND MUST NOTIFY THE ENGINEER OF ANY DISCREPANCIES WHICH MAY AFFECT DESIGN AND/OR INSTALLATION PRIOR TO BEGINNING CONSTRUCTION.**
E. **CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR VERIFYING PLATTED OR DEDICATED RIGHTS-OF-WAY, EASEMENTS, PROPERTY LINES, ZONED STREET AND/OR SETBACK LINES PRIOR TO THE START OF CONSTRUCTION. OWNER AND/OR CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING NECESSARY RIGHTS-OF-WAY AND/OR EASEMENTS NECESSARY TO COMPLETE THE WORK.**



LOCATION MAP

THE SOUTHWEST 1/4 OF
SECTION 23, TOWNSHIP 52 SOUTH, RANGE 40 EAST
MIAMI-DADE COUNTY, FLORIDA
SCALE: 1" = 300'

EARTHWORK NOTES:

1. The contractor's bid for earthwork shall include the excavation, removal and proper disposal of all materials, of whatever character within the limits of construction. All topsoil that is suitable for landscaping or grassing operations may be stockpiled nearby for such use if approved by owner. Where muck, marl, rock, clay or other material within the limits of construction is unsuitable in its original position, the contractor shall excavate such material in its entirety and backfill with suitable material which shall be compacted in place to conform to the required grades and sections as shown on the plans. It is the contractor's responsibility to verify the suitability of the material present on-site and include the removal and replacement of same in his bid price. The contractor shall make his own estimate on the volume of material actually required to obtain the cross sections or grades as shown on the plans.
2. All materials removed become the property of the Contractor and are to be removed completely away from the site by him. Do not store or permit debris to accumulate on the site. Remove all grass, plants, vegetation an organic material from same area.
3. Wherever excavations for utilities are made below the grades indicated on the plans, granular material free of organic or other deleterious material shall be used to restore the area to the proper grade, and shall be compacted to 98% of maximum density at optimum moisture pursuant to AASHTO T-180.
4. Contractor shall clean up, repair or replace at no cost to Owner all property damaged by reason of required work. All patchwork shall match existing and be performed in a neat and workmanlike manner by craftsmen skilled in the trade involved. In newly graded areas take every precaution and temporary measures necessary, to prevent damage from erosion of freshly graded areas. Where any settlement or washing may occur prior to acceptance of the work, repair and re-establish grades to the required elevations and slopes at no additional cost to the Owner. This applies to damage to the newly graded areas within the construction limits and damage to adjacent properties by eroded material.

TRAFFIC GENERAL NOTES & CONDITIONS

1) Engineer shall prepare signing & pavement markings plans in a separate sheet (1" = 50' scale minimum)
2) Engineer shall visit site & verify field conditions before preparing proposed signing & pavement markings plans.
3) Contractor shall be responsible for the removal of all pavement markings and signs conflicting with the proposed roadway construction.
4) Contractor shall be responsible for the installation of all pavement markings and signs as shown in the plans and applicable traffic design standards.
5) Contractor shall be responsible for matching existing pavement markings at the beginning and at the end of the project, and at all intersecting side streets.
6) Contractor shall be responsible for the installation of reflective pavement markings along the entire length of the project.
7) Any signing material, including supports to be removed, shall be delivered by the contractor to Miami-Dade County's Traffic Signal and Signs Maintenance Facility located at 7100 N.W. 36th Street, Miami, Florida.
8) Sign assembly locations shown in the plans which are in conflict with street lighting utilities, driveways, pedestrian ramps, etc. may be adjusted as directed by the Engineer / Inspector. Contractor shall be responsible for providing pedestrian ramps where sidewalk is existing or proposed (ADA – PWM).

DRAINAGE STRUCTURES DATA:

1) Drainage structures shall be "Exfiltration Trench" type as per Standard Detail SD 1.1.
2) All catch basins shall be Type "P" (SD 2.6). Frames shall be as per Miami-Dade County Standard Detail SD 2.1 (1 of 2). Bottom elevations of inlets shall be set as shown on the Drainage Structure Table.
3) Exfiltration trenches shall be 15 feet deep, 4 feet wide with 18" perforated High Density Polyethylene (HDPE) pipe. Pipe invert elevations shall be set in accordance with Drainage Structure Table.
4) Prior to installing drainage system filter fabric and ballast rock, the contractor shall notify the engineer for inspection.

ENGINEER'S CERTIFICATION:

I HEREBY CERTIFY: That this plan was prepared under my direction and to the best of my knowledge and belief complies with the intent of the "MANUAL OF UNIFORM STANDARDS FOR DESIGN, CONSTRUCTION AND MAINTENANCE FOR STREETS AND HIGHWAYS", as adopted by the State of Florida legislature, Chapter 72-328 FS.

PAVING, GRADING, DRAINAGE, & PAVEMENT MARKING PLAN SHEET INDEX

US SOUTH
ENGINEERING & TESTING LABORATORY, Inc.
14347 Commerce Way, Miami, FL 33016
Ph. 305-558-2588 Fax. 305-362-4669

APPROVALS

DESIGNED: E.R.	CHECKED: E.R.
DRAWN: Y.P.	FINAL CHECK: E.R.

FILE No.: B 16-9007

REVISION No.	DESCRIPTION	DATE

N.W.77th AVENUE & 145 St.
FOLIOS: 32-2023-001-0541 / 0550 / 0560
MIAMI LAKES, FL

DRAWING TITTLE:
CONCEPTUAL WATER, SEWER, PAVING & DRAINAGE

Eduardo Rodriguez Jr. P.E.
Project Manager
State of Florida – License No. 56197
Date:

DATE: 01/29/2018 | SCALE: AS SHOWN

SHEET C-0.0

OF - SHEETS

Last Edited: Jan 29, 2018 - 3:13pm Plot: Jan 29, 2018 - 3:13pm File: WSPD.dwg

PALMETTO EXPRESSWAY (S.R. 826)

N.W. 77th AVENUE

EXIST. ASPHALT PAVEMENT (TO REMAIN)

PROP. OFFICE BLDG.
FIN. FLOOR ELEV.=9.5 (NGVD)

BEGIN PROP. 6' CONCRETE SIDEWALK

PROP. PERIMETER BERM
TOP OF BERM
ELEV=9.00
(25 Yr-3 Day STORM STAGE)

INLET S-3
TYPE "P" INLET
RIM=8.30
INV.=3.50
BOTTOM=0.00
BAFFLE SOUTH

INLET S-2
TYPE "P" INLET
RIM=8.30
INV.=3.50
BOTTOM=0.00
BAFFLE EAST

PROP. LIGHT POLE (TYP.)
(SEE SITE PLAN)

NORTH LINE
SW 1/4 SECTION 23-52-40

PROP. 6'
CONCRETE
SIDEWALK

PROP. BLDG.
OVERHANG

PROPOSED ASPHALT PAVEMENT

62 LF 18" HDPE

65 LF 18" HDPE INCLUDING
25 LF EXFILTRATION TRENCH

INLET S-1
TYPE "P" INLET
RIM=8.30
INV.=3.50
BOTTOM=0.00
BAFFLE WEST

PROP. CONC. SIDEWALK (SEE SITE PLAN)

EXIST. FPL POLES
(TO REMAIN)

EXIST. GRADE ELEV.=6.0±

INLET S-5
TYPE "P" INLET
RIM=8.30
INV.=3.50
BOTTOM=1.50

93 LF 18" HDPE INCLUDING 60 LF
EXFILTRATION TRENCH

59 LF 18" HDPE

EXIST. FPL POLE & ANCHORS
(TO REMAIN)

PROP. PERIMETER BERM
TOP OF BERM
ELEV=9.00
(25 Yr-3 Day STORM STAGE)

INLET S-4
TYPE "P" INLET
RIM=8.30
INV.=3.50
BOTTOM=0.00
BAFFLE NORTH

PROP. LIGHT POLE (TYP.)
(SEE SITE PLAN)

PROP. 4' CONC. SIDEWALK
(SEE SITE PLAN)

141 LF 18" HDPE INCLUDING 85 LF EXFILTRATION TRENCH

INLET S-8
TYPE "P" INLET
RIM=8.30
INV.=3.50
BOTTOM=0.00
BAFFLE SOUTH

PROP. 6'
CONCRETE
SIDEWALK

PROP. LIGHT POLE (TYP.)
(SEE SITE PLAN)

INLET S-6
TYPE "P" INLET
RIM=8.30
INV.=3.50
BOTTOM=0.00
BAFFLE EAST

INLET S-7
TYPE "P" INLET
RIM=8.30
INV.=3.50
BOTTOM=0.00
BAFFLE WEST

PROP. PERIMETER BERM
TOP OF BERM
ELEV=9.00
(25 Yr-3 Day STORM STAGE)

PROP. OFF-SITE TREES
(SEE LANDSCAPE PLAN)

PROP. 6'
CONCRETE
SIDEWALK

END PROP. 6'
CONCRETE SIDEWALK

MEET & MATCH EXIST. ASPHALT
PAVEMENT & GRADE

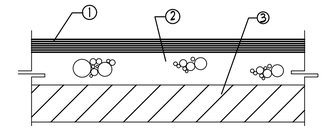
EXIST. ASPHALT PAVEMENT (TO REMAIN)

FRONTAGE ROAD

CANAL R/W

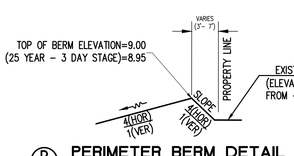
N.W. 146th STREET

LEGEND
DENOTES STORMWATER FLOW DIRECTION
9.00 DENOTES PROPOSED ELEVATION



① ASPHALTIC CONC. SURFACE COURSE, TYPE S-1, 1"
② COMPACTED LIMEROCK BASE, FULLY PRIMED, 8"
③ STABILIZED & COMPACTED SUB-GRADE, LBR=40 (MIN.)

TYPICAL PAVING SECTION
C C-10 N.T.S.



PERIMETER BERM DETAIL
D C-10 (N.T.S.)

GRAPHIC SCALE
0 5 10 15 20 40 60 80 100
SCALE : 1" = 20'

PAVING & GRADING PLAN

US SOUTH
ENGINEERING & TESTING
LABORATORY, Inc.
14347 Commerce Way,
Miami, FL 33016
Ph. 305-558-2588 Fax. 305-362-4669

APPROVALS

DESIGNED: E.R.	CHECKED: E.R.
DRAWN: Y.P.	FINAL CHECK: E.R.
FILE No.: B 16-9007	

REVISION No.	DESCRIPTION	DATE

N.W.77th AVENUE & 145 St.
FOLIOS: 32-2023-001-0541 / 0551 / 0560
MIAMI LAKES, FL

DRAWING TITTLE:
CONCEPTUAL
WATER, SEWER,
PAVING & DRAINAGE

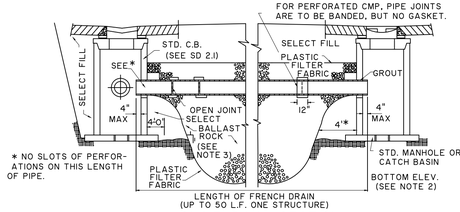
Eduardo Rodriguez Jr. P.E.
Project Manager
State of Florida – License No. 56197
Date:

DATE: 01/29/2018 SCALE: AS SHOWN

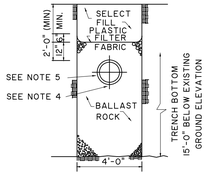
SHEET C-1.0

OF - SHEETS

Last Edited: Jan 29, 2018 - 3:13pm Plot: Jan 29, 2018 - 3:13pm File: WSPD.dwg



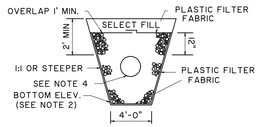
LONGITUDINAL SECTION



TRANSVERSE SECTION

NOTES:

1. PLASTIC FILTER FABRIC (AT EA. SIDE, TOP AND BOTTOM) SHALL BE USED IN SANDY AREAS AS NOTED ON PLANS AND/OR AS DIRECTED BY THE ENGINEER
2. THE BOTTOM OF THE EXFILTRATION TRENCH SHALL BE 15'-0" BELOW EXISTING GROUND ELEVATION, UNLESS FIELD CONDITIONS WARRANT OTHERWISE.
3. AFTER THE BALLAST ROCK HAS BEEN PLACED TO THE PROPER ELEVATION, IT SHALL BE CAREFULLY WASHED DOWN WITH CLEAN WATER IN ORDER TO ALLOW FOR INITIAL SETTLEMENT THAT MAY OCCUR. IF IT DOES TAKE PLACE, ADDITIONAL BALLAST ROCK WILL BE ADDED TO RESTORE THE BALLAST ROCK TO THE PROPER ELEVATION, SO THAT THE EXFILTRATION TRENCH WILL BE COMPLETED IN ACCORDANCE WITH THE DETAILS.
4. INVERT ELEVATION TO BE AS SHOWN IN W.C. 2.2(AVG. OCTOBER GROUND WATER LEVEL).
5. SEE SHEET 2 OF 3 OF SD I.I IN THE D.C.P.W. MANUAL.



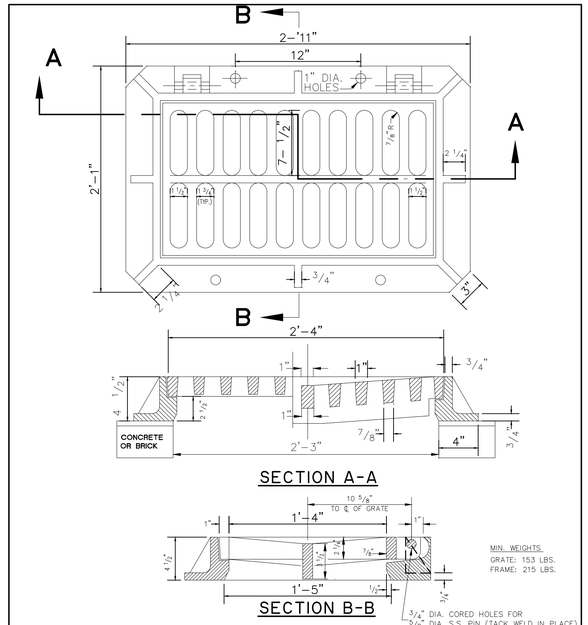
ALT. TRANS. SECTION

MAY BE USED IN AREAS WHERE TRENCH WALLS WILL NOT STAND VERTICAL, OR WHERE CAVE IN BELOW THE WATER TABLE IS LIKELY TO OCCUR. TO BE USED AT THE ENGINEER'S DISCRETION.

DRAINAGE PIPE		SEC.320
EXFILTRATION TRENCH		SEC.360
DESIGN WATER TABLE	SEC.D4	SEC.D4
BALLAST ROCK		SEC.360
PV'MT RESTORATION	R-2I.I	
ITEM	CROSS REF.	SPEC. REF.

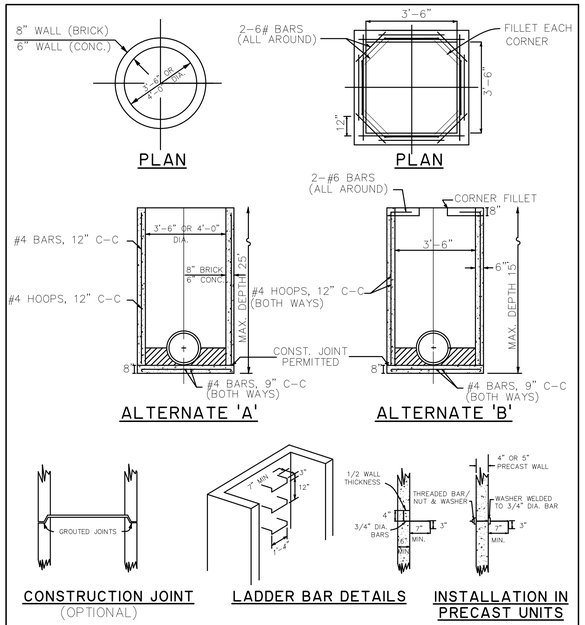
NOTE: IF THIS DETAIL IS TO BE USED FOR PRETREATMENT OF STORMWATER RUN-OFF, THE INVERT OF PIPE TO BE AS SHOWN IN W.C. 2.2; IF PRETREATMENT HAS BEEN PROVIDED THRU OTHER MEANS THE INVERT OF PIPE CAN BE LOWER THAN SHOWN IN W.C. 2.2.

STANDARD STORM DRAINAGE DETAIL	SD
EXFILTRATION TRENCH	I.I



INLET CONST		SEC 355
SWALE INLET	SD-3.1	
ITEM	CROSS REF.	SPEC. REF.

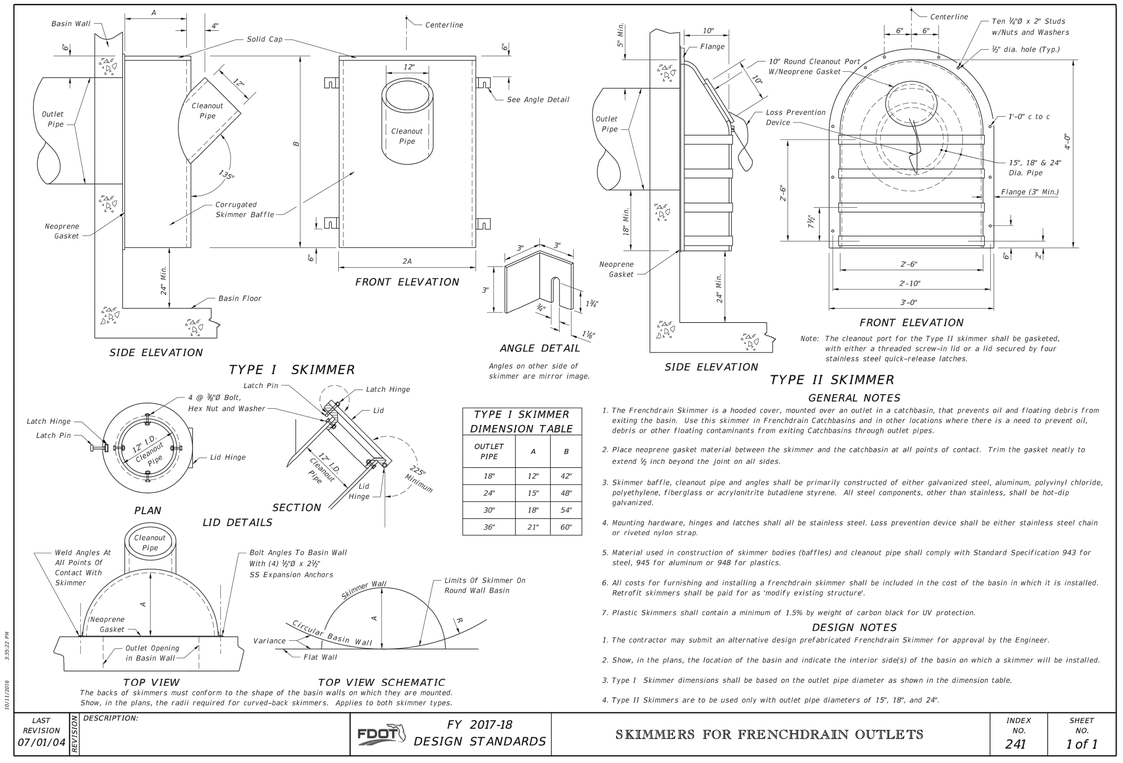
METROPOLITAN DADE COUNTY PUBLIC WORKS DEPARTMENT	APPROVED	REVISED	STANDARD STORM DRAINAGE DETAIL	SD
	6/26/61	6/1/62 8/10/66 2/9/99	CATCH BASIN FRAME AND HINGED GRATE	2.3 SHEET 1 of 2



NOTE:
LADDER BARS SHALL BE INSTALLED IN BOXES 10' IN DEPTH OR GREATER.

INLET CONST		SEC 355
M.H. CONST.		SEC 340
ITEM	CROSS REF.	SPEC. REF.

METROPOLITAN DADE COUNTY PUBLIC WORKS DEPARTMENT	APPROVED	REVISED	STANDARD STORM DRAINAGE DETAIL	SD
	5/17/72	6/4/86	INLET, MANHOLE AND JUNCTION BOX (TYPE P)	2.6 SHEET 3 of 4



GENERAL NOTES

1. The Frenchdrain Skimmer is a hooded cover, mounted over an outlet in a catchbasin, that prevents oil and floating debris from exiting the basin. Use this skimmer in Frenchdrain Catchbasins and in other locations where there is a need to prevent oil, debris or other floating contaminants from exiting Catchbasins through outlet pipes.
2. Place neoprene gasket material between the skimmer and the catchbasin at all points of contact. Trim the gasket neatly to extend ½ inch beyond the joint on all sides.
3. Skimmer baffle, cleanout pipe and angles shall be primarily constructed of either galvanized steel, aluminum, polyvinyl chloride, polyethylene, fiberglass or acrylonitrite butadiene styrene. All steel components, other than stainless, shall be hot-dip galvanized.
4. Mounting hardware, hinges and latches shall all be stainless steel. Loss prevention device shall be either stainless steel chain or riveted nylon strap.
5. Material used in construction of skimmer bodies (baffles) and cleanout pipe shall comply with Standard Specification 943 for steel, 945 for aluminum or 948 for plastics.
6. All costs for furnishing and installing a frenchdrain skimmer shall be included in the cost of the basin in which it is installed. Retrofit skimmers shall be paid for as 'modify existing structure'.
7. Plastic Skimmers shall contain a minimum of 1.5% by weight of carbon black for UV protection.

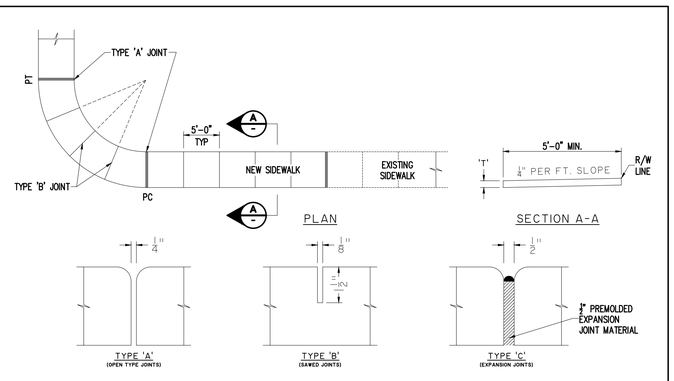
DESIGN NOTES

1. The contractor may submit an alternative design prefabricated Frenchdrain Skimmer for approval by the Engineer.
2. Show, in the plans, the location of the basin and indicate the interior side(s) of the basin on which a skimmer will be installed.
3. Type I Skimmer dimensions shall be based on the outlet pipe diameter as shown in the dimension table.
4. Type II Skimmers are to be used only with outlet pipe diameters of 15", 18", and 24".

The backs of skimmers must conform to the shape of the basin walls on which they are mounted. Show, in the plans, the radii required for curved-back skimmers. Applies to both skimmer types.

TYPE I SKIMMER DIMENSION TABLE		
OUTLET PIPE	A	B
18"	12"	42"
24"	15"	48"
30"	18"	54"
36"	21"	60"

LAST REVISION	DESCRIPTION:	FDOT FY 2017-18 DESIGN STANDARDS	SKIMMERS FOR FRENCHDRAIN OUTLETS	INDEX NO.	SHEET NO.
07/01/04				241	1 of 1



SIDEWALK JOINTS

TABLE OF SIDEWALK THICKNESS-'T'	
LOCATION	'T'
RESIDENTIAL AREAS	4"
AT DRIVEWAYS AND OTHER AREAS	6"

TABLE OF SIDEWALK JOINTS	
TYPE	LOCATION
'A'	PC AND PT OF CURVES JUNCTION OF EXISTING AND NEW SIDEWALKS.
'B'	5'-0" CENTER TO CENTER ON SIDEWALKS.
'C'	WHERE SIDEWALKS ABUTS CONCRETE CURBS, DRIVEWAYS, AND SIMILAR STRUCTURES.

ST. INTERSECTION C & G	R-I5.2	
CONC. SIDEWALK		SEC. I45
ITEM	CROSS REF.	SPEC. REF.

* AT THE DISCRETION OF THE ENGINEER

METROPOLITAN DADE COUNTY PUBLIC WORKS DEPARTMENT	APPROVED	REVISED	STANDARD ROAD DETAIL	R
	6/5/61	5/17/72 2/22/77 6/4/86	SIDEWALK CONSTRUCTION	13.1 SHEET 1 of 1

US SOUTH
ENGINEERING & TESTING LABORATORY, Inc.
14347 Commerce Way, Miami, FL 33016
Ph. 305-558-2588 Fax. 305-362-4669

APPROVALS

DESIGNED: E.R.	CHECKED: E.R.
DRAWN: Y.P.	FINAL CHECK: E.R.
FILE No.: B 16-9007	

REVISION No.	DESCRIPTION	DATE

N.W.77th AVENUE & 145 St.
FOLIOS: 32-2023-001-0541 / 0550 / 0560
MIAMI LAKES, FL

DRAWING TITLE:
CONCEPTUAL WATER, SEWER, PAVING & DRAINAGE

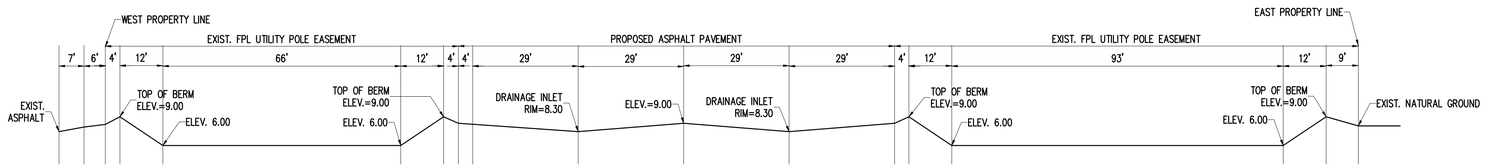
Eduardo Rodriguez Jr. P.E.
Project Manager
State of Florida – License No. 56197
Date:

DATE: 01/29/2018 SCALE: AS SHOWN

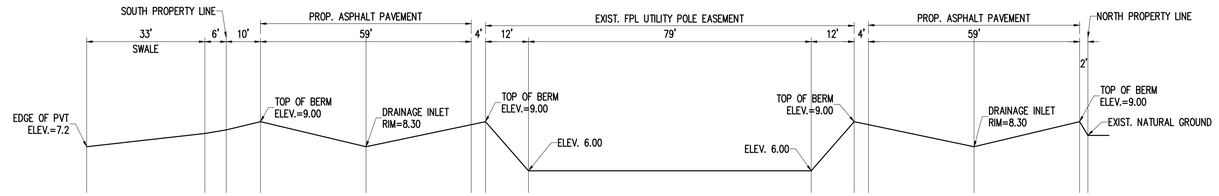
SHEET C-1.1
OF - SHEETS

Last Edited: Jan 29, 2018 - 3:13pm Plot: Jan 29, 2018 - 3:13pm File: #SP0.dwg

PAVING & GRADING DETAILS



SECTION "A"
NTS



SECTION "B"
NTS

PROJECT CROSS SECTION

US SOUTH
ENGINEERING & TESTING LABORATORY, Inc.
14347 Commerce Way,
Miami, FL 33016
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APPROVALS

DESIGNED: E.R.	CHECKED: E.R.
DRAWN: Y.P.	FINAL CHECK: E.R.

FILE No.: B 16-9007

REVISION No.	DESCRIPTION	DATE

N.W.77th AVENUE & 145 St.
FOLIOS: 32-2023-001-0541 / 0551 / 0560
MIAMI LAKES, FL

DRAWING TITTLE:
CONCEPTUAL WATER, SEWER, PAVING & DRAINAGE

Eduardo Rodriguez Jr. P.E.
Project Manager
State of Florida – License No. 56197
Date:

DATE: 01/29/2018 SCALE: AS SHOWN

SHEET C-1.2

OF - SHEETS

Last Edited: Jan 29, 2018 - 3:13pm Plot: Jan 29, 2018 - 3:13pm File: WSPD.dwg

PALMETTO EXPRESSWAY (S.R. 826)

N.W. 77th AVENUE

GRAPHIC SCALE
0 5 10 15 20 40 60 80 100
SCALE : 1" = 20'

PROP. OFFICE BLDG.
FIN. FLOOR ELEV.=9.5 (NGVD)

25' 25'
15.02' S02°15'38"E
900.01' S01°15'38"E
349.83' N89°56'59"E
165.09' S02°18'29"E
80.06' N89°56'59"E
199.85' N89°56'59"E
430.08' N89°56'59"E
(N89°56'59"E 150.11')
15.06' S02°18'29"E

PROP. LIGHT POLE (TYP.)
(SEE SITE PLAN)

BLDG. OVERHANG
4 SPC @ 8.5'=34.0'
12 SPACES @ 8.5'=102.0'
7 SPACES @ 8.5'=59.5'
(2) @ 8.5'=17.0'
7 SPACES @ 8.5'=59.5'
9 SPACES @ 8.5'=76.5'
11 SPACES @ 8.5'=93.5'
4 SPACES @ 8.5'=34.0'
5 SPACES @ 8.5'=42.5'
6 SPACES @ 8.5'=51.0'
7 SPACES @ 8.5'=59.5'
11 SPACES @ 8.5'=93.5'
7 SPACES @ 8.5'=59.5'

DETECTABLE WARNING PER FDOT INDEX 304

RAMP

4'-0" CONT. CONC. SIDEWALK

STOP

FRONTAGE ROAD

CANAL R/W

N.W. 146th STREET

TYPICAL ADA AND STANDARD PARKING SPACE
SCALE: N.T.S.

4" SOLID WHITE TRAFFIC PAINT
WHEELSTOP
4" SOLID BLUE TRAFFIC PAINT
4" BLUE WHEN ADJACENT SPACE IS FOR HANDICAP PARKING. 4" WHITE IF NON-HANDICAP.
DRIVE
6" RADIUS
℄ OF PARKING SPACE
HANDICAPPED SYMBOL MUST BE BLUE IN COLOR
PAINT: CHLORINATE RUBBER ALKYDE FS TT-P-115 TYPE III, FACTORY MIXED, QUICK DRYING NON-BLEEDING COLOR PER LOCAL CODE

TYPICAL ADA RAMP
SCALE: N.T.S.

6" THICK CONCRETE SIDEWALK SECTION
NOTE: INSTALL 1" TOOLED RADIUS ON ALL EXPOSED EDGES SIMILAR AS SHOWN ON CURB DETAIL
CONCRETE FLUSH WITH PAVEMENT
RAMP (BEYOND)
RETAINING CURB
PAVEMENT
SUBGRADE COMPACTED AS SPECIFIED
SECTION A-A
5' TYPICAL
6' TYP. (SEE SITE PLAN)
5' MIN. LANDING
CONCRETE HANDICAP RAMP (3000 PSI) SURFACE SHALL HAVE TRUNCATED DOMES PER AMERICANS WITH DISABILITIES ACT AND LOCAL ACCESSIBILITY CODE AND SHALL BE VISUALLY CONTRASTING TO SURROUNDING SURFACES (MIN. 70% COLOR CONTRAST)
CURB NOT SHOWN FOR CLARITY
RETAINING CURB AS REQUIRED
LANDING SHALL VISUALLY CONTRAST WITH SURROUNDING SURFACES (COORDINATE WITH CITY FOR PERFERRED METHOD AND/OR COLORS) WHEN ENTERING VEHICLE USE AREAS.

TYPICAL ADA SIGNAGE
SCALE: N.T.S.

PARKING BY DISABLED PERMIT ONLY
TOW AWAY ZONE AND FINE UP TO $250.00
FLANGED POST PER LOCAL BLDG. CODE
FINISH GRADE
18"ø

PAVEMENT MARKINGS & SIGNS PLAN

US SOUTH
ENGINEERING & TESTING LABORATORY, Inc.
14347 Commerce Way,
Miami, FL 33016
Ph. 305-558-2588 Fax. 305-362-4669

APPROVALS

DESIGNED: E.R.	CHECKED: E.R.
DRAWN: Y.P.	FINAL CHECK: E.R.
FILE No.: B 16-9007	

REVISION No.	DESCRIPTION	DATE

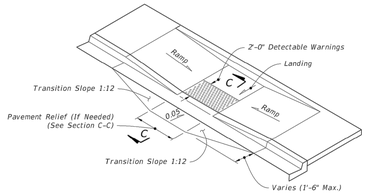
N.W.77th AVENUE & 145 St.
FOLIOS: 32-2023-001-0541 / 0550 / 0560
MIAMI LAKES, FL

DRAWING TITTLE:
CONCEPTUAL WATER, SEWER, PAVING & DRAINAGE

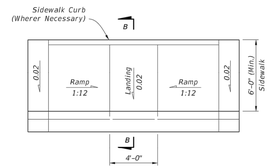
Eduardo Rodriguez Jr. P.E.
Project Manager
State of Florida – License No. 56197
Date:

DATE: 01/29/2018 SCALE: AS SHOWN
SHEET C-2.0
OF - SHEETS

Last Edited: Jan 29, 2018 - 3:13pm Plot: Jan 29, 2018 - 3:13pm File: MSP0.dwg

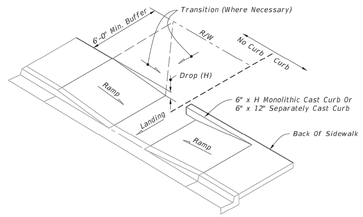


ISOMETRIC VIEW

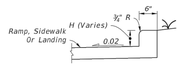


PLAN VIEW

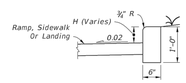
CR-C



CONSTRUCTION OF SIDEWALK CURB IN CUT SECTIONS

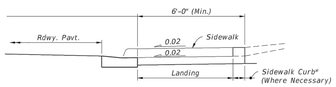


MONOLITHIC CAST CURB



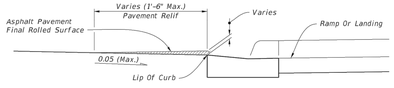
SEPARATLEY CAST CURB

SIDEWALK CURB OPTIONS



* Note: For Additional Information On Sidewalk Curb Construction, See SIDEWALK CURB OPTIONS details.

SECTION B-B



Note: Remove Elevated Pavement By Spading And Rolling, Smooth Milling or Grinding.

SECTION C-C

SIDEWALK CURB RAMPS CR-C AND SIDEWALK CURB

LAST REVISION	DESCRIPTION:				
11/01/16		FDOT FY 2017-18 DESIGN STANDARDS	DETECTABLE WARNINGS AND SIDEWALK CURB RAMPS	INDEX NO. 304	SHEET NO. 3 of 8

10/27/2016 8:43:28 AM

PAVEMENT MARKING DETAILS

US SOUTH
ENGINEERING & TESTING LABORATORY, Inc.
14347 Commerce Way,
Miami, FL 33016
Ph. 305-558-2588 Fax. 305-362-4669

APPROVALS

DESIGNED: E.R.	CHECKED: E.R.
DRAWN: Y.P.	FINAL CHECK: E.R.

FILE No.: B 16-9007

REVISION No.	DESCRIPTION	DATE

N.W.77th AVENUE & 145 St.
FOLIOS: 32-2023-001-0541 / 0550 / 0560
MIAMI LAKES, FL

DRAWING TITTLE:
CONCEPTUAL
WATER, SEWER,
PAVING & DRAINAGE

Eduardo Rodriguez Jr. P.E.
Project Manager
State of Florida – License No. 56197
Date:

DATE: 01/29/2018 SCALE: AS SHOWN

SHEET C-2.1

OF - SHEETS

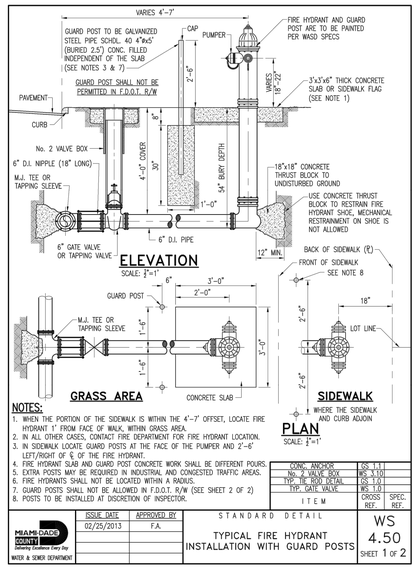
Last Edited: Jan 29, 2018 - 3:13pm Plot: Jan 29, 2018 - 3:13pm File: #P20.dwg

PALMETTO EXPRESSWAY (S.R. 826)

N.W. 77th AVENUE (EXIST. ASPHALT PAVEMENT TO REMAIN)

GRAPHIC SCALE
0 5 10 15 20 40 60 80 100
SCALE : 1" = 20'

CONNECT PROP. SAN. SEWER TO EXIST. SAN. MH
BEGIN PROP. 6' CONCRETE SIDEWALK
NORTH LINE SW 1/4 SECTION 23-52-40
349.83' N89°56'59"E
PROP. SAN MH.
CONNECT PROP. BLDG SEWER TO 6" SAN LATERAL.
PROP. OFFICE BLDG.
FIN. FLOOR ELEV.=9.5 (NGVD)
PROP. BLDG. OVERHANG
16"x6" TAP. SLEEVE w/6" TAP. VALVE
16"x6" TAP. SLEEVE w/6" TAP. VALVE
PROP. FH ASSY.
6"x4" TEE
6"x4" REDUCER
4" GV
4" CS
4" 90° BEND
PROP. 4" DUAL DETECTOR BACKFLOW PREV. ASSY.
PROP. 2" RED. PRESS. ZONE BACKFLOW PREV. ASSY.
PROP. 2" IRRIGATION VACUUM BREAKER ASSY.
PROP. (2) 2" WATER METER ASSY.
(N89°56'59"E 150.11')
25' 25'
S02°15'39"E 150.21'

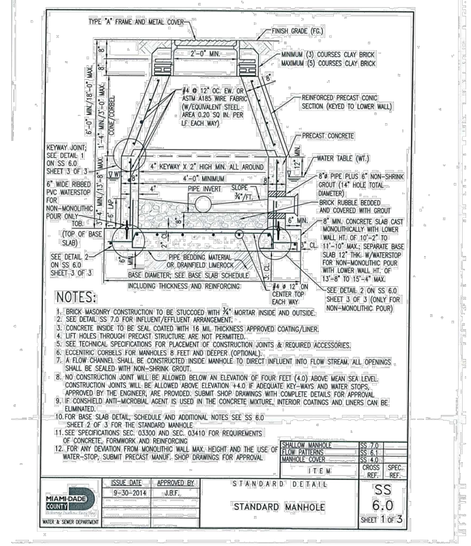


NOTES:
1. WHEN THE PORTION OF THE SIDEWALK IS WITHIN THE 4'-7" OFFSET, LOCATE FIRE HYDRANT 1' FROM FACE OF WALK, WITHIN GRASS AREA.
2. IN ALL OTHER CASES, CONTACT FIRE DEPARTMENT FOR FIRE HYDRANT LOCATION.
3. IN SIDEWALK LOCATE GUARD POSTS AT THE FACE OF THE PUMPER AND 2'-6" LEFT/RIGHT OF ℄ OF THE FIRE HYDRANT.
4. FIRE HYDRANT SLAB AND GUARD POST CONCRETE WORK SHALL BE DIFFERENT POURS.
5. EXTRA POSTS MAY BE REQUIRED IN INDUSTRIAL AND CONGESTED TRAFFIC AREAS.
6. FIRE HYDRANTS SHALL NOT BE LOCATED WITHIN A RADIUS.
7. GUARD POSTS SHALL NOT BE ALLOWED IN F.D.O.T. R/W (SEE SHEET 2 OF 2)
8. POSTS TO BE INSTALLED AT DISCRETION OF INSPECTOR.

ITEM	CROSS REF.	SPEC. REF.
CONC. ANCHOR		WS 3.11
No. 2 VALVE BOX		WS 3.10
TYP. TIE ROD DETAIL		GS 1.0
TYP. GATE VALVE		WS 1.0

ISSUE DATE	APPROVED BY
02/25/2013	F.A.

STANDARD DETAIL
TYPICAL FIRE HYDRANT INSTALLATION WITH GUARD POSTS
WS 4.50 SHEET 1 OF 2

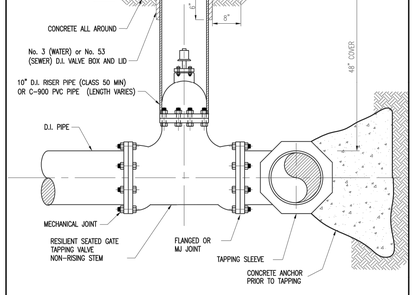


NOTES:
1. BRICK MASONRY CONSTRUCTION TO BE STUCCOED WITH ¾" MORTAR INSIDE AND OUTSIDE.
2. SEE DETAIL SS 7.0 FOR INFLUENT/EFFLUENT ARRANGEMENT.
3. CONCRETE INSIDE TO BE SEAL COATED WITH 16 MIL THICKNESS APPROVED COATING/LINER.
4. LIFT HOLES THROUGH PRECAST STRUCTURE ARE NOT PERMITTED.
5. SEE TECHNICAL SPECIFICATIONS FOR PLACEMENT OF CONSTRUCTION JOINTS & REQUIRED ACCESSORIES.
6. ECCENTRIC CORBELS FOR MANHOLES 8 FEET AND DEEPER (OPTIONAL).
7. A FLOW CHANNEL SHALL BE CONSTRUCTED INSIDE MANHOLE TO DIRECT INFLUENT INTO FLOW STREAM. ALL OPENINGS SHALL BE SEALED WITH NON-SHRINK GROUT.
8. NO CONSTRUCTION JOINT WILL BE ALLOWED BELOW AN ELEVATION OF FOUR FEET (4.0) ABOVE MEAN SEA LEVEL. CONSTRUCTION JOINTS WILL BE ALLOWED ABOVE ELEVATION +4.0 IF ADEQUATE KEY-WAYS AND WATER STOPS, APPROVED BY THE ENGINEER, ARE PROVIDED. SUBMIT SHOP DRAWINGS WITH COMPLETE DETAILS FOR APPROVAL.
9. IF CONCRETE ANTI-MICROBIAL AGENT IS USED IN THE CONCRETE MIXTURE, INTERIOR COATINGS AND LINERS CAN BE ELIMINATED.
10. FOR BASE SLAB DETAIL, SCHEDULE AND ADDITIONAL NOTES SEE SS 6.0 SHEET 2 OF 3 FOR THE STANDARD MANHOLE.
11. SEE SPECIFICATIONS SEC. 03300 AND SEC. 03410 FOR REQUIREMENTS OF CONCRETE, FORMWORK AND REINFORCING.
12. FOR ANY DEVIATION FROM MONOLITHIC WALL MAX. HEIGHT AND THE USE OF WATER-STOP, SUBMIT PRECAST MANUF. SHOP DRAWINGS FOR APPROVAL.

ITEM	CROSS REF.	SPEC. REF.
SHALLOW MANHOLE		SS 7.0
FLOW ENTRIES		SS 4.1
MANHOLE COVER		SS 4.0

ISSUE DATE	APPROVED BY
9-30-2014	J.B.F.

STANDARD DETAIL
STANDARD MANHOLE
SS 6.0 SHEET 1 OF 3

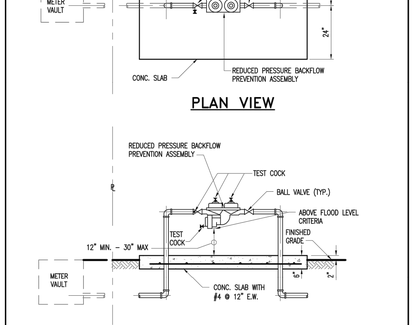


NOTES:
1. RESILIENT SEATED GATE TAPPING VALVE CAN BE USED FOR SEWER CONNECTION.
2. 18" CLEARANCE FROM FITTINGS AND BELLS.
3. TAPPING VALVE AND SLEEVE SHALL BE PRESSURE TESTED AT 150 "psi" PRIOR TO BEING TAPPED.
4. TAPPING ON CONCRETE MAINS SHALL BE PRESSURE TESTED AT A LOWER PRESSURE THAN THE ACTIVE OPERATING PRESSURE OF THE MAIN.

ITEM	CROSS REF.	SPEC. REF.
No.53 Valve Box		SS 13.0
No. 3 Valve Box		WS 3.11
INSTALLATION		GS 1.8

ISSUE DATE	APPROVED BY
01/22/2009	V.F.C.
07/20/2016	D.V.

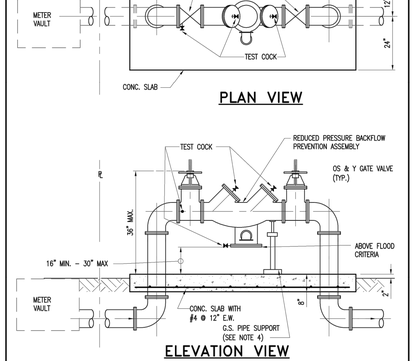
STANDARD DETAIL
TYPICAL TAPPING VALVE SETTING (16" AND SMALLER)
GS 1.7 SHEET 1 OF 1



ITEM	CROSS REF.	SPEC. REF.
GUARD POST DETAIL	WS 4.5	

ISSUE DATE	APPROVED BY
6/26/2012	F.A.

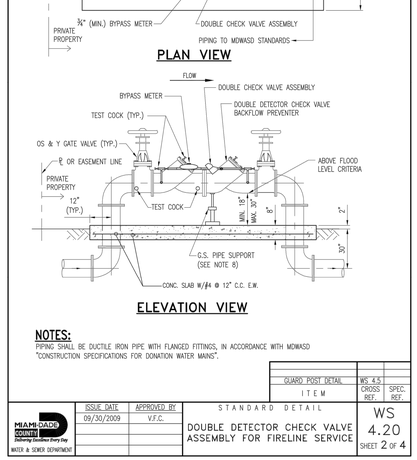
STANDARD DETAIL
REDUCED PRESSURE ZONE BACKFLOW PREVENTER FOR WATER SERVICE 3/4" THRU 2"
WS 4.18 SHEET 1 OF 5



ITEM	CROSS REF.	SPEC. REF.
GUARD POST DETAIL	WS 4.5	

ISSUE DATE	APPROVED BY
6/26/2012	F.A.

STANDARD DETAIL
REDUCED PRESSURE ZONE BACKFLOW PREVENTER FOR WATER SERVICE 2½" THRU 10"
WS 4.18 SHEET 2 OF 5

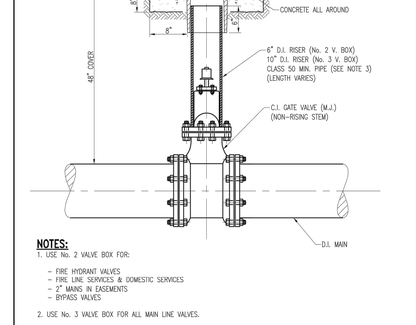


NOTES:
PIPING SHALL BE DUCTILE IRON PIPE WITH FLANGED FITTINGS, IN ACCORDANCE WITH MDWASD "CONSTRUCTION SPECIFICATIONS FOR DONATION WATER MAINS".

ITEM	CROSS REF.	SPEC. REF.
GUARD POST DETAIL	WS 4.5	

ISSUE DATE	APPROVED BY
09/30/2009	V.F.C.

STANDARD DETAIL
DOUBLE DETECTOR CHECK VALVE ASSEMBLY FOR FIRELINE SERVICE
WS 4.20 SHEET 2 OF 4



NOTES:
1. USE No. 2 VALVE BOX FOR:
   - FIRE HYDRANT VALVES
   - FIRE LINE SERVICES & DOMESTIC SERVICES
   - 2" MAINS IN EASEMENTS
   - BYPASS VALVES
2. USE No. 3 VALVE BOX FOR ALL MAIN LINE VALVES.
3. PVC C900 PIPE CAN BE USED FOR RISER IN LIEU OF DUCTILE IRON.
4. IF USED FOR RECLAIMED WATER VALVES, THE LID SHALL BE MARKED "R" AND BOTH THE LID AND THE RISER PIPE ARE TO BE COLORED PURPLE PANTONE 522C.

ITEM	CROSS REF.	SPEC. REF.
No. 3 VALVE BOX & LID		WS 3.11
No. 2 VALVE BOX & LID		WS 3.10

ISSUE DATE	APPROVED BY
10/10/2008	V.F.C.

STANDARD DETAIL
TYPICAL GATE VALVE SETTING (SMALLER THAN 16")
WS 1.0 SHEET 1 OF 1

WATER & SEWER DEPARTMENT

WATER & SEWER PLAN AND DETAILS

US SOUTH
ENGINEERING & TESTING LABORATORY, Inc.
14347 Commerce Way, Miami, FL 33016
Ph. 305-558-2588 Fax. 305-362-4669

APPROVALS

DESIGNED: E.R.	CHECKED: E.R.
DRAWN: Y.P.	FINAL CHECK: E.R.
FILE No.: B 16-9007	

REVISION No.	DESCRIPTION	DATE

N.W.77th AVENUE & 145 St.
FOLIOS: 32-2023-001-0541 / 0550 / 0560
MIAMI LAKES, FL

DRAWING TITTLE:
CONCEPTUAL WATER, SEWER, PAVING & DRAINAGE

Eduardo Rodriguez Jr. P.E.
Project Manager
State of Florida – License No. 56197
Date:_____

DATE: 01/29/2018 SCALE: AS SHOWN

SHEET C-3.0

OF - SHEETS

Last Edited: Jan 29, 2018 - 3:13pm Plot: Jan 29, 2018 - 3:13pm File: WSPD.dwg

DRAINAGE REPORT

for:

"MIAMI LAKES OFFICE BUILDING"

A subdivision of a portion of the Northwest ¼ of

Section 23, Township 52 South, Range 40 East,

City of Miami Lakes, Miami-Dade County, Florida

(Basin C-8)

January, 2018

Prepared by:

U.S. SOUTH ENGINEERING & TESTING LABORATORY, Inc.
14347 Commerce Way
Miami, Fl. 33016
(305) 558-2588

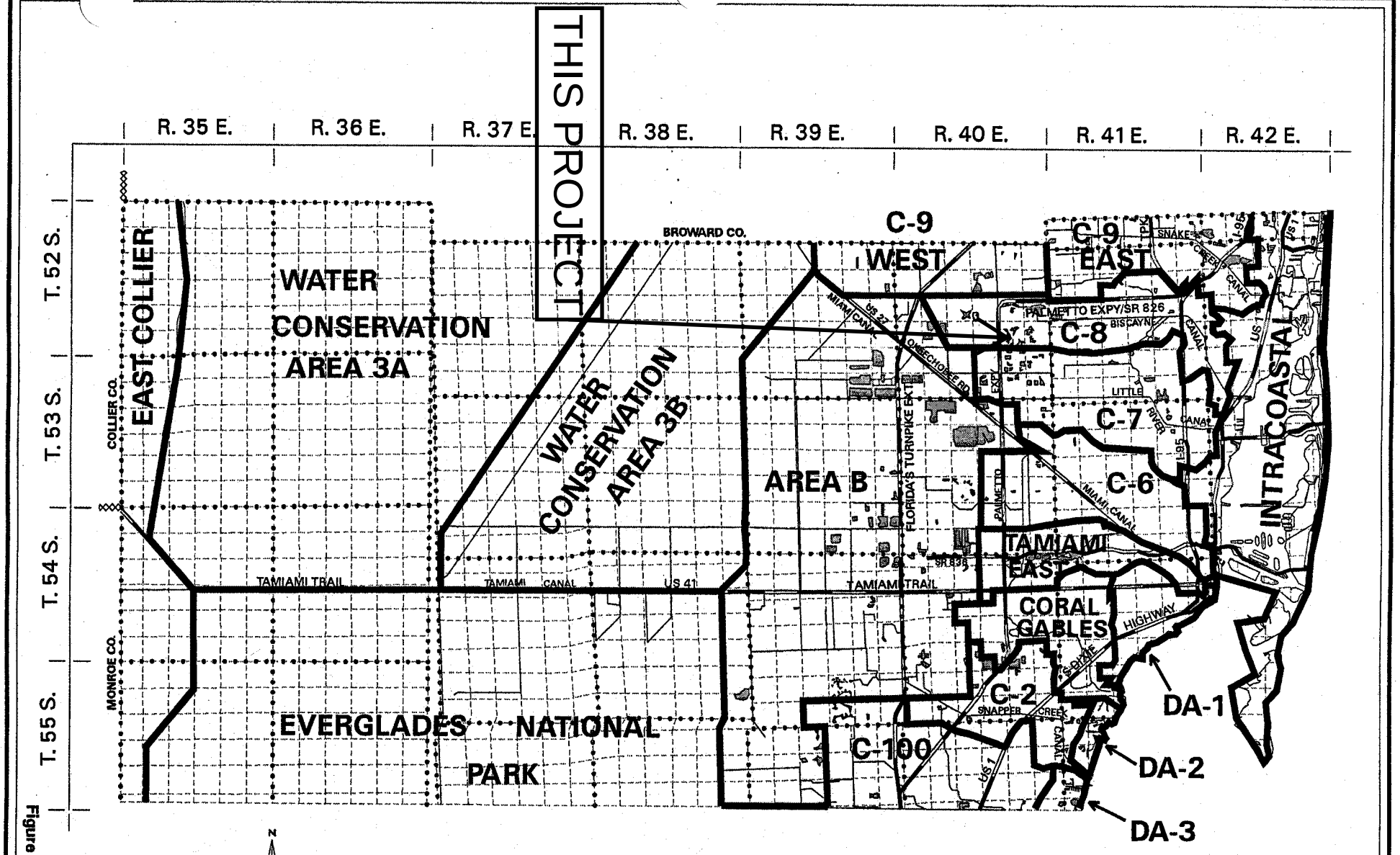


Figure 8-11

DRAINAGE BASINS for NORTHERN MIAMI-DADE COUNTY, FL.

INTRODUCTION

Purpose

This report and calculations have been prepared to accompany a Site Plan approval application to the city of Miami Lakes.
The subject property will be developed as a three story office building with parking:
The final result of the flood routing will demonstrate that the maximum stages reached do not exceed the designed finish floor elevation (Elev. 9.5) for the 100 year – 3 day storm event.
The surface water management system consists of drainage inlets and pipes directing storm water run-off through a network of exfiltration trenches. Overflow will be directed to an on-site dry retention area.
The first inch of runoff shall be dispersed through an interconnect network of French drains (170 LF provided, 83 LF required).

Design Criteria

- LEGAL DESCRIPTION: Portion of Tract 48 of "FLORIDA FRUIT LANDS COMPANY SUBDIVISION No. 1", of Section 23, Township 52 South, Range 40 East, according the plat thereof as recorded in Plat Book 2, at Page 17, of the Public Records of Miami-Dade County, Florida.
- Project is located North of N.W. 145th Street & east of N.W. 77th Avenue.
- All land areas to be filled to Miami-Dade County Flood Criteria.
- All elevations refer to N.G.V.D.
- Miami-Dade County Flood Criteria = +6.5 (NGVD)
- Proposed Minimum Finish Floor Elevation: +9.50 (NGVD)
- Maximum peak flood routing stage for 100 year – 3 day storm event: 9.21 (NGVD)
- Maximum flood routing stage for 25 year – 3 day storm event:8.96 (NGVD)
- Maximum flood routing stage for 10 year – 24 hr. storm event:8.59 (NGVD)
- Existing natural ground elevation = +6.0 (NGVD) (average)
- Average Yearly Lowest groundwater elevation = +2.0 N.G.V.D. (W.C. – 2.3)
- Average October groundwater elevation = +3.0 N.G.V.D. (W.C. – 2.2)

Summary of Drainage Areas

Gross Area= 2.053 acres
Total Building Area: **0.170** acres
Total dry retention Area: **0.693** acres
Open Land Area (Gross Area – Buildings – Lakes): (2.053 – 0.170 – 0.693 = **1.189** acres
Total Impervious Area: **1.033** acres

- Roof Area: 0.170 acres
- Pavement & Sidewalks: 0.863 acres

Total Pervious Area **0.326** acres
Assumed runoff coefficient:

- Filled areas = 0.8
- Pervious areas = 0.3

Pervious & Impervious Areas

On-Site Areas	%
0.326 Acres Pervious	15.90
0.863 Acres Impervious	42.03
0.170 Acres (Bldg.)	8.30
0.693 Acres (dry retention area)	33.77

Flood Routing Data

Depth of groundwater from filled surface = +8.20 (average) – 3.0 = 5.2 ft
Available groundwater storage (From SFWMD Permit Manual):
8.18 inches (under pervious areas)
Groundwater storage weighted for pervious areas = 8.18 x 0.1590= ***1.30 inches***

STAGE / STORAGE

	DRY RETENTION		OPEN LAND		TOTAL "A"
Stage (ft)	Area (Acres)	Storage (acre/feet)	Area (Acres)	Storage (acre/feet)	Storage (acre/feet)
6.00	0.69	0.00	0.00	0.00	*0.00*
6.50	0.69	0.35	0.00	0.00	*0.35*
7.00	0.69	0.69	0.00	0.00	*0.69*
7.50	0.69	1.04	0.13	0.01	*1.05*
8.00	0.69	1.39	0.46	0.16	*1.55*
8.50	0.69	1.73	0.79	0.48	*2.21*
9.00	0.69	2.08	1.12	0.95	*3.03*
9.50	0.69	2.43	1.19	1.55	*3.97*

Water Quality Calculation

Total Project Area: 2.053 acres
Total Impervious Area: 0.863 acres (50.33%)

- Building Area: 0.170 acres (8.30%)
- Pavement/Concrete/Sidewalks: 0.863 acres (42.03%)

Total Pervious Area: 0.326 acres (15.90%)
Dry Retention area: 0.693 acres (33.77%)

For water quality treatment, the first inch of runoff from the entire site, or the amount of 2½ inches times the percentage of imperviousness shall be treated, whichever is greater.

1. First inch of runoff:
    a. Volume required = 1 inch x 2.053 ÷ 12 = 0.171 acre feet
2. 2½ inches times the percentage of imperviousness[1]:
    a. Volume required = 2½ x 0.4203 = 1.05 inches
    b. Volume to be treated =1.05 (inches) x 2.05 (acres) ÷ 12 = 0.179 acre-feet
3. Condition 2 is greater than Condition 2 therefore:
4. Volume to be treated: **0.179** acre-feet

Drainage trench required (see attached calculations) 308 *L.F.* required (8.3985 acre/inches treated = 0.700 acre/feet).
Drainage trench provided (see attached calculations) **170 L.F.**

Rainfall Constants

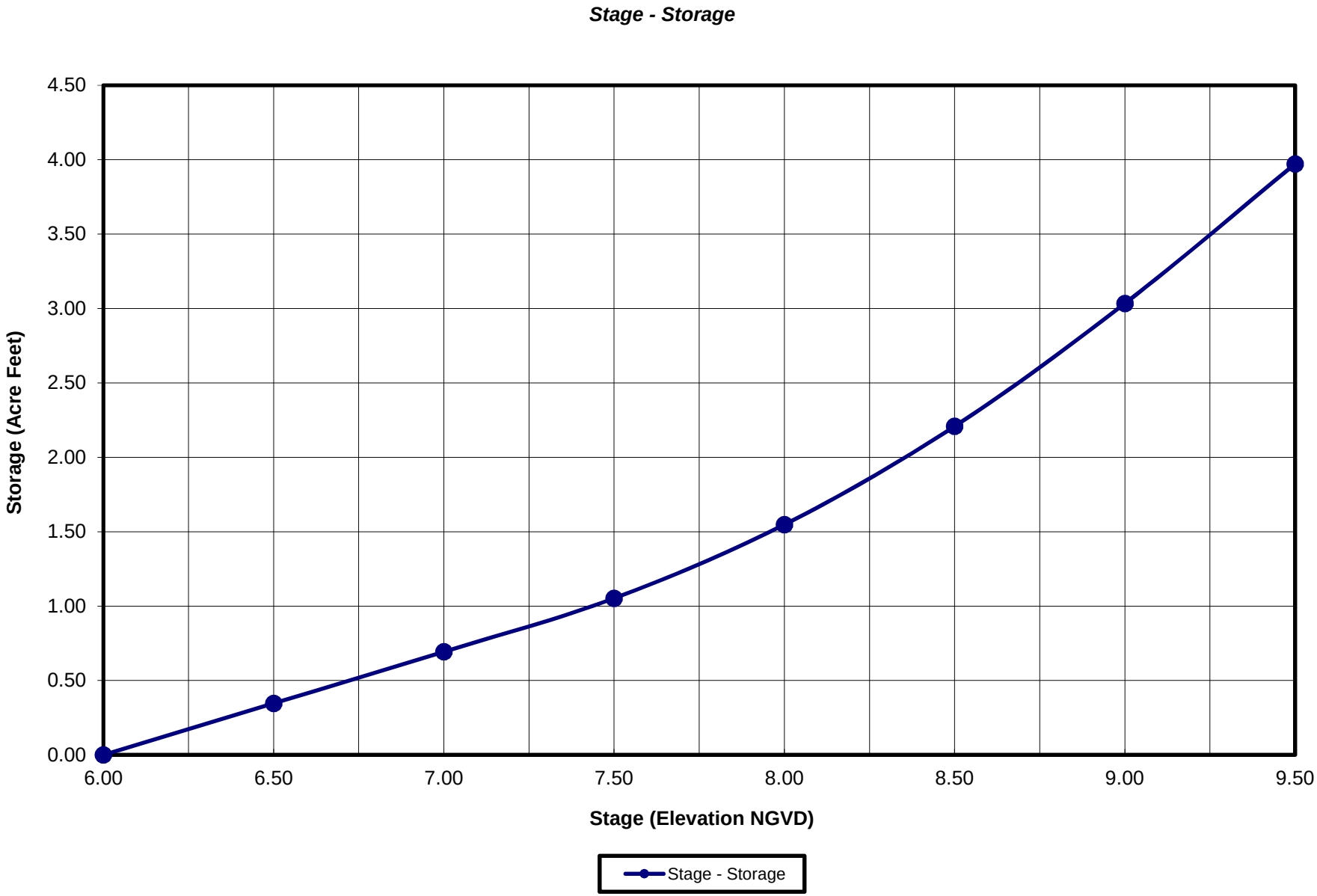
For Flood Routing computations (Cascade)

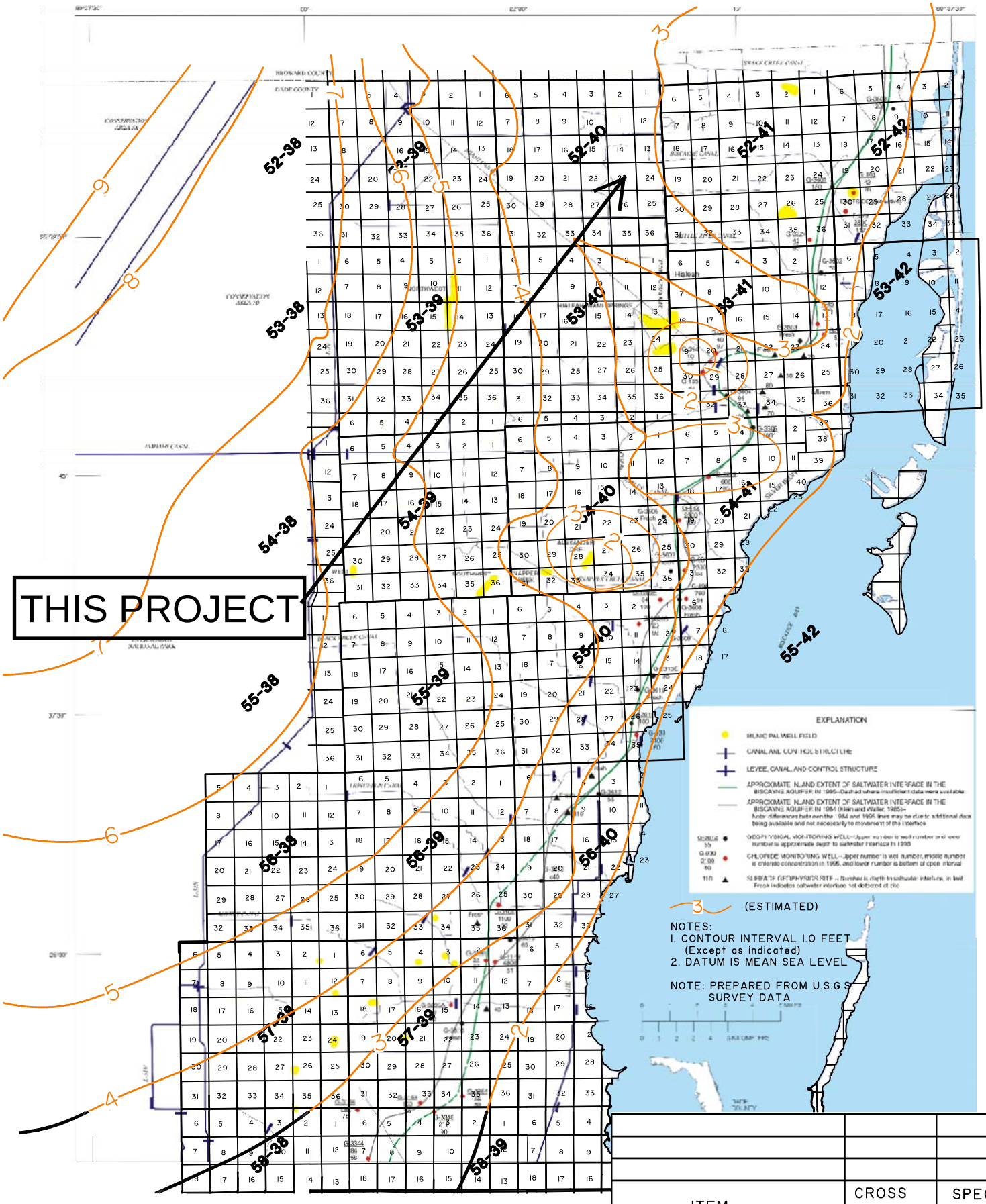
100 year rainfall quantity: 13.72 inches (3.28 inch rainfall credit applied)
25 year rainfall quantity: 10.72 inches (3.28 inch rainfall credit applied)
10 year rainfall quantity: 7.0 inches (from Permit Manual 10 year map)

Conclusion

This analysis and corresponding calculations prove that the storm water retention system designed for this project exceeds the local and state requirements for storm water management systems.

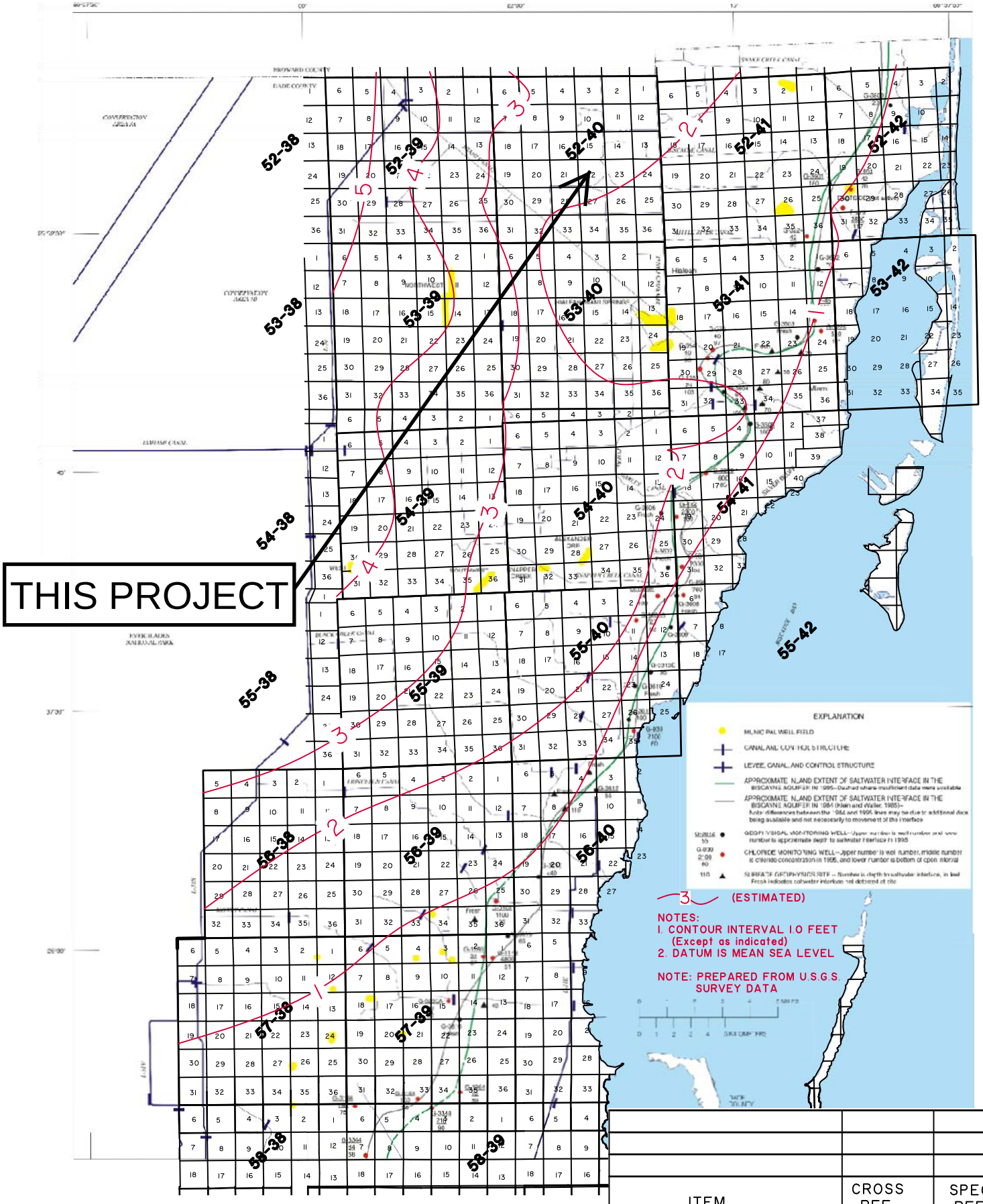
[1] Pursuant to SFWMD Permit Manual (2013), roof and stormwater retention area may be deducted from site area for water quality calculation purposes (Part IV – Stormwater Quality, Section 4.2.2(c).


Stage - Storage
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
Storage (Acre Feet)
6.00
6.50
7.00
7.50
8.00
8.50
9.00
9.50
Stage (Elevation NGVD)
Stage - Storage



ITEM	CROSS REF.	SPEC. REF.

METROPOLITAN DADE COUNTY PUBLIC WORKS DEPARTMENT	APPROVED 4/5/72	REVISED 2/19/75 4/14/77	DESIGN STANDARDS AVERAGE OCTOBER GROUND WATER LEVEL 1960-75	WC 2.2 SHEET 1 of 1



ITEM	CROSS REF.	SPEC. REF.

METROPOLITAN DADE COUNTY PUBLIC WORKS DEPARTMENT	APPROVED 4/5/72	REVISED 2/19/75 4/14/77	DESIGN STANDARDS AVERAGE MAY GROUND WATER LEVEL 1960-75	WC 2.4 SHEET 1 of 1

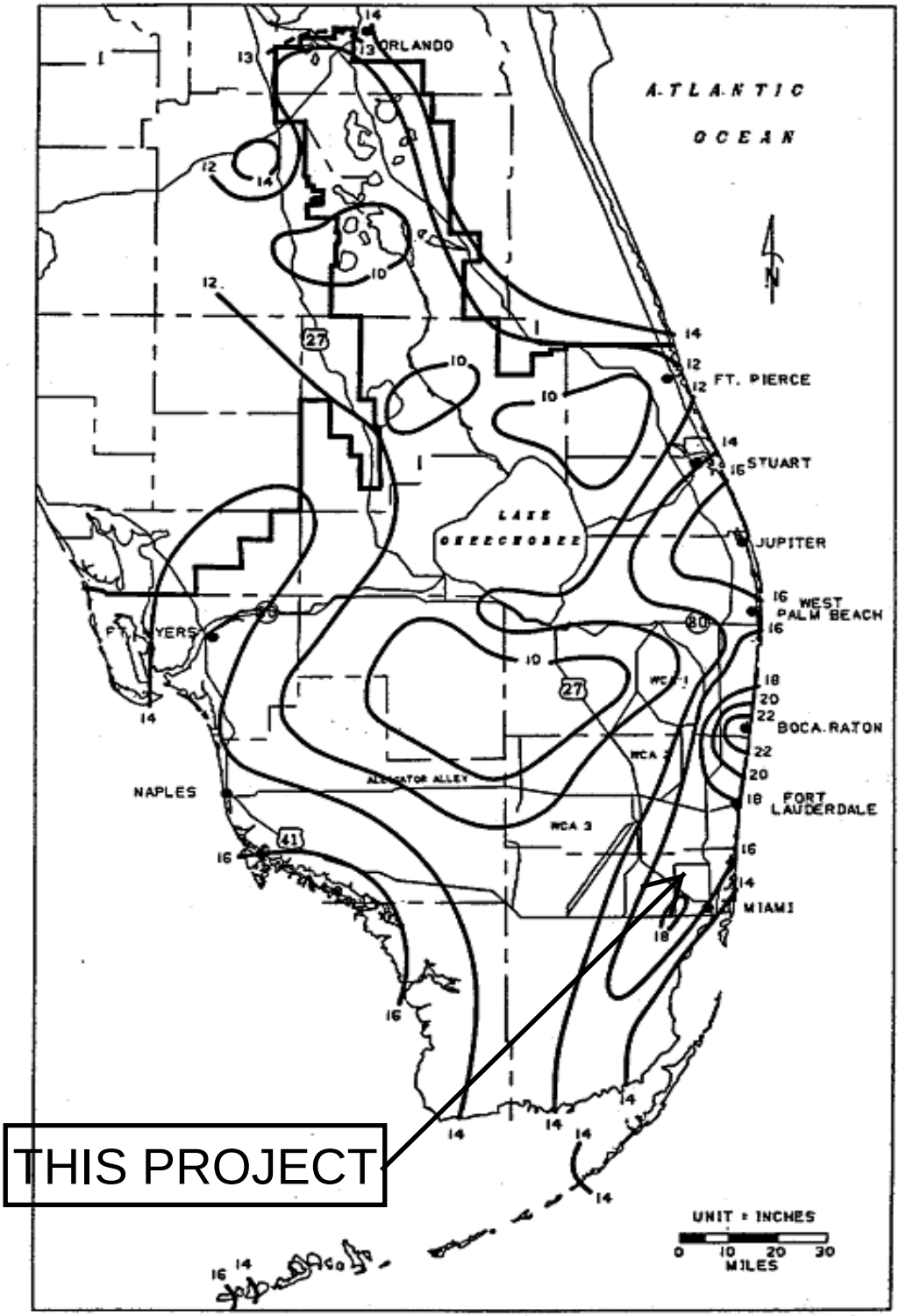


FIGURE C-9. 3-DAY RAINFALL: 100-YEAR RETURN PERIOD

Project Name: Zone2017-0614
Reviewer: 2a
Project Number: U.S.S.
  Period Begin: Jan 25, 2018;0000 hr End: Jan 28, 2018;0000 hr Duration: 72 hr
  Time Step: 0.2 hr,   Iterations: 10

Basin 1: Retention Area

  Method: Santa Barbara Unit Hydrograph
  Rainfall Distribution: SFWMD - 3day
  Design Frequency: 100 year
  3 Day Rainfall: 13.7201 inches
  Area: 0.693003 acres
  Ground Storage: 1.3 inches
  Time of Concentration: 1 hours
  Initial Stage: 6 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
6.00	0.00
6.50	0.35
7.00	0.69
7.50	1.04
8.00	1.39
8.50	1.73
9.00	2.08
9.50	2.43

Basin 2: Paving

  Method: Santa Barbara Unit Hydrograph
  Rainfall Distribution: SFWMD - 3day
  Design Frequency: 100 year
  3 Day Rainfall: 13.7201 inches
  Area: 1.189 acres
  Ground Storage: 1.3 inches
  Time of Concentration: 1 hours
  Initial Stage: 7.3 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
7.30	0.00
7.50	0.01
8.00	0.16
8.50	0.48
9.00	0.95
9.50	1.55

STRUCTURE MAXIMUM AND MINIMUM DISCHARGES

Struc	Max (cfs)	Time (hr)	Min (cfs)	Time (hr)

BASIN MAXIMUM AND MINIMUM STAGES

Basin	Max (ft)	Time (hr)	Min (ft)	Time (hr)
Retention Area	7.01	72.00	6.00	0.00
Paving	9.21	72.00	7.30	0.00

BASIN WATER BUDGETS (all units in acre-ft)

Basin	Total Runoff	Structure Inflow	Structure Outflow	Initial Storage	Final Storage	Residual
Retention Area	0.70	0.00	0.00	0.00	0.70	0.00
Paving	1.20	0.00	0.00	0.00	1.20	0.00

Miami Lakes Office Building

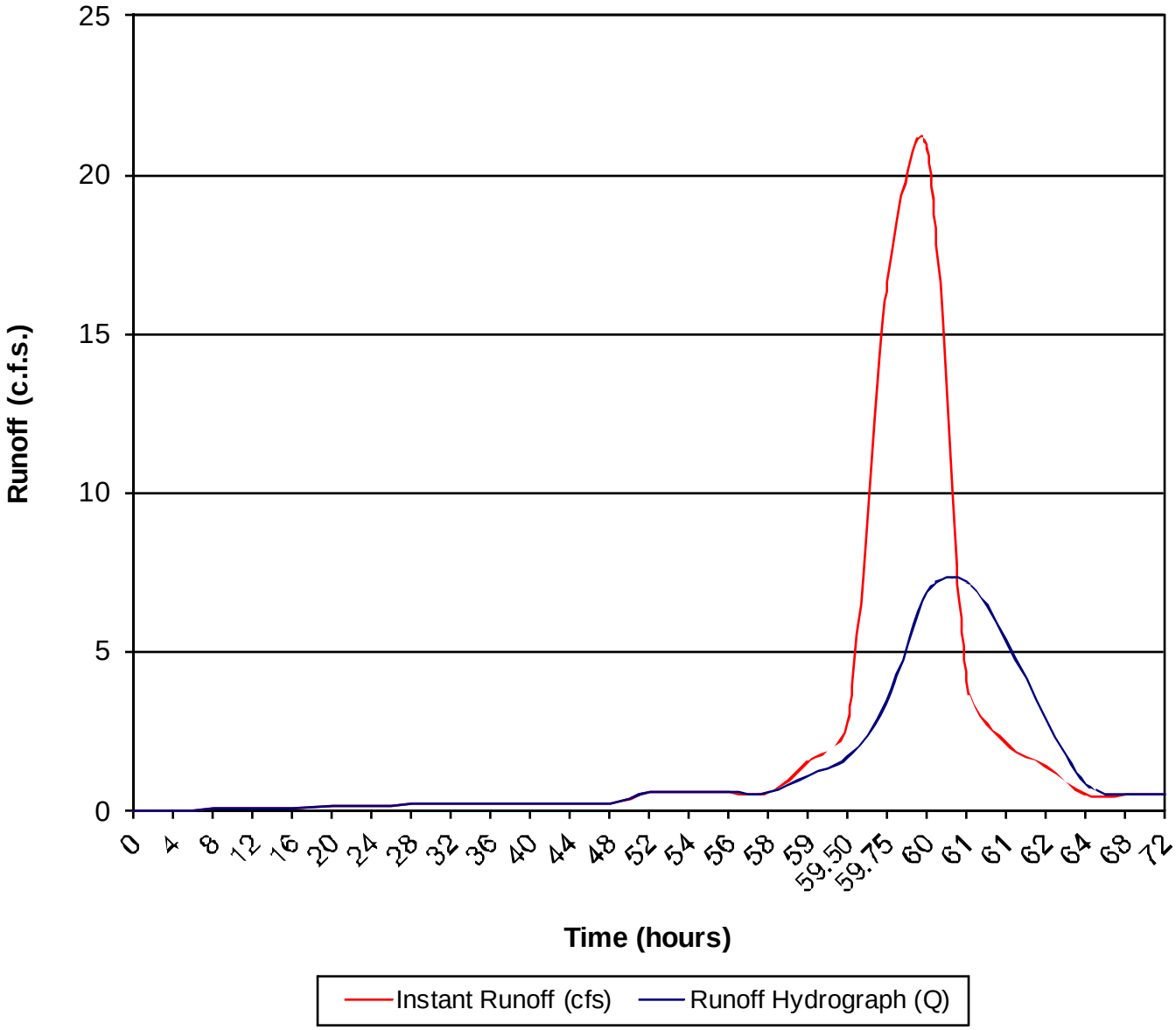
100 Year - 72 hour Event

Time of Concentration (Hr.):	1.00
Impervious Area (Acres):	1.03
Pervious Area (Acres):	1.02
Total Land Area (Acres):	2.05
Pervious Percentage:	49.76%
Available Soil Storage (inches):	8.18
Weighted Soil Storage (inches):	1.30
Rainfall:	13.72
Frequency (year):	100
Duration (hours):	72

Time (Hours)	Ratio (P/P24)	Cumulative Rain (in)	Runoff (in)	Cumulative Runoff (AF)	Instant Runoff (cfs)	Runoff Hydrograph (Q)
0.00	0.000	0.00	0.00	0.00	0.00	0.00
4.00	0.024	0.33	0.00	0.00	0.02	0.00
8.00	0.049	0.67	0.10	0.02	0.07	0.06
12.00	0.073	1.00	0.27	0.05	0.10	0.09
16.00	0.097	1.33	0.49	0.08	0.12	0.12
20.00	0.122	1.67	0.73	0.13	0.13	0.13
24.00	0.146	2.00	1.00	0.17	0.15	0.14
28.00	0.182	2.49	1.41	0.24	0.22	0.21
32.00	0.217	2.98	1.84	0.31	0.22	0.22
36.00	0.253	3.47	2.28	0.39	0.23	0.23
40.00	0.288	3.95	2.73	0.47	0.23	0.23
44.00	0.324	4.44	3.19	0.54	0.24	0.23
48.00	0.359	4.93	3.65	0.62	0.22	0.24
52.00	0.444	6.10	4.77	0.82	0.58	0.57
54.00	0.487	6.68	5.34	0.91	0.58	0.58
56.00	0.530	7.27	5.91	1.01	0.58	0.58
58.00	0.572	7.85	6.48	1.11	0.56	0.58
59.00	0.628	8.62	7.23	1.24	1.55	1.14
59.50	0.678	9.30	7.91	1.35	2.77	1.68
59.75	0.828	11.36	9.94	1.70	16.65	3.46
60.00	1.015	13.93	12.48	2.13	20.85	6.86
60.50	1.088	14.93	13.47	2.30	4.08	7.21
61.00	1.126	15.45	13.99	2.39	2.12	5.37
62.00	1.177	16.15	14.69	2.51	1.43	2.91
64.00	1.213	16.65	15.18	2.59	0.51	0.85
68.00	1.286	17.65	16.18	2.76	0.51	0.52
72.00	1.359	18.65	17.17	2.93	0.51	0.51

SBUH (MLakes).xlsx

Santa Barbara Urban Hydrograph (100 Year)



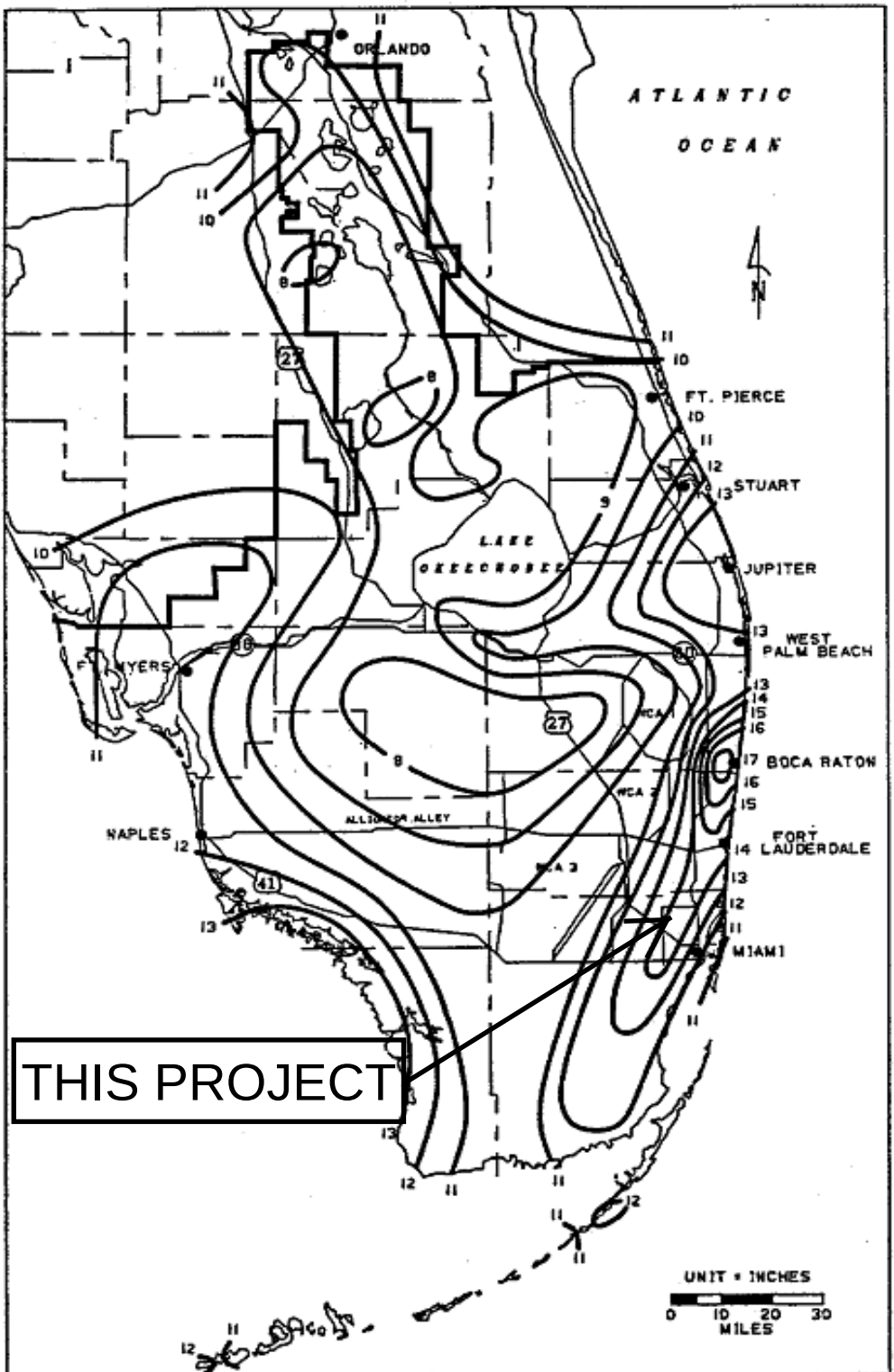


FIGURE C-8. 3-DAY RAINFALL: 25-YEAR RETURN PERIOD

Project Name: Zone2017-0614
Reviewer: 2a
Project Number: U.S.S.
  Period Begin: Jan 25, 2018;0000 hr End: Jan 28, 2018;0000 hr Duration: 72 hr
  Time Step: 0.2 hr,   Iterations: 10

Basin 1: Retention Area

  Method: Santa Barbara Unit Hydrograph
  Rainfall Distribution: SFWMD - 3day
  Design Frequency: 25 year
  3 Day Rainfall: 10.72 inches
  Area: 0.693003 acres
  Ground Storage: 1.3 inches
  Time of Concentration: 1 hours
  Initial Stage: 6 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
6.00	0.00
6.50	0.35
7.00	0.69
7.50	1.04
8.00	1.39
8.50	1.73
9.00	2.08
9.50	2.43

Basin 2: Paving

  Method: Santa Barbara Unit Hydrograph
  Rainfall Distribution: SFWMD - 3day
  Design Frequency: 25 year
  3 Day Rainfall: 10.72 inches
  Area: 1.189 acres
  Ground Storage: 1.3 inches
  Time of Concentration: 1 hours
  Initial Stage: 7.3 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
7.30	0.00
7.50	0.01
8.00	0.16
8.50	0.48
9.00	0.95
9.50	1.55

STRUCTURE MAXIMUM AND MINIMUM DISCHARGES

Struc	Max (cfs)	Time (hr)	Min (cfs)	Time (hr)

BASIN MAXIMUM AND MINIMUM STAGES

Basin	Max (ft)	Time (hr)	Min (ft)	Time (hr)
Retention Area	6.77	72.00	6.00	0.00
Paving	8.96	72.00	7.30	0.00

BASIN WATER BUDGETS (all units in acre-ft)

Basin	Total Runoff	Structure Inflow	Structure Outflow	Initial Storage	Final Storage	Residual
Retention Area	0.53	0.00	0.00	0.00	0.53	0.00
Paving	0.91	0.00	0.00	0.00	0.91	0.00

Miami Lakes Office Building

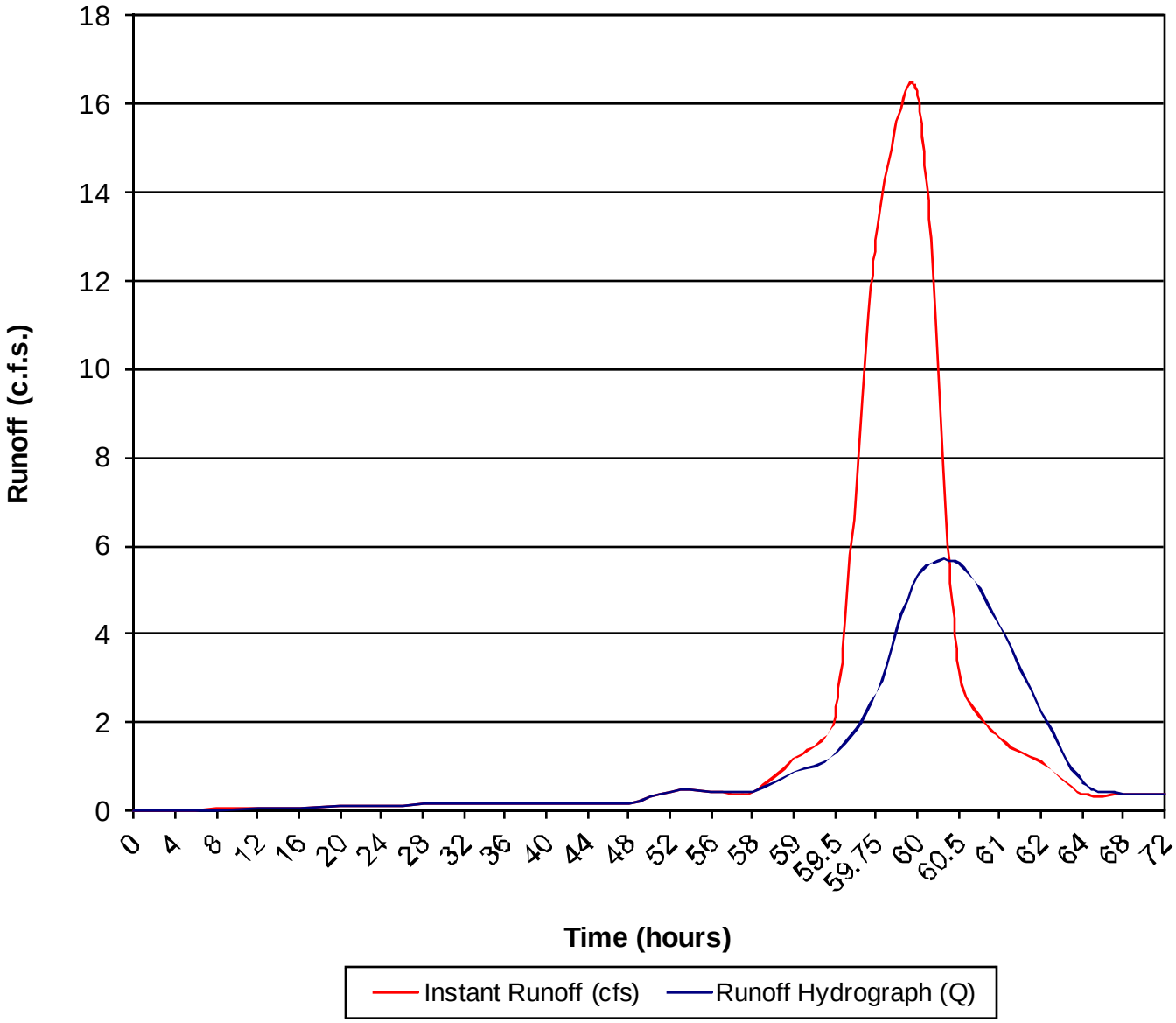
25 Year - 72 hour Event

Time of Concentration (Hr.):	1.00
Impervious Area (Acres):	1.03
Pervious Area (Acres):	1.02
Total Land Area (Acres):	2.05
Pervious Percentage:	49.76%
Available Soil Storage (inches):	8.18
Weighted Soil Storage (inches):	1.30
Rainfall:	10.72
Frequency (year):	25
Duration (hours):	72

Time (Hours)	Ratio (P/P24)	Cumulative Rain (in)	Runoff (in)	Cumulative Runoff (AF)	Instant Runoff (cfs)	Runoff Hydrograph (Q)
0.00	0.000	0.00	0.00	0.00	0.00	0.00
4.00	0.024	0.26	0.00	0.00	0.00	0.00
8.00	0.049	0.52	0.04	0.01	0.04	0.03
12.00	0.073	0.78	0.15	0.03	0.06	0.06
16.00	0.097	1.04	0.29	0.05	0.08	0.08
20.00	0.122	1.30	0.46	0.08	0.09	0.09
24.00	0.146	1.57	0.65	0.11	0.11	0.10
28.00	0.182	1.95	0.95	0.16	0.16	0.15
32.00	0.217	2.33	1.27	0.22	0.17	0.16
36.00	0.253	2.71	1.60	0.27	0.17	0.17
40.00	0.288	3.09	1.94	0.33	0.18	0.17
44.00	0.324	3.47	2.28	0.39	0.18	0.18
48.00	0.359	3.85	2.63	0.45	0.17	0.18
52.00	0.444	4.76	3.49	0.60	0.44	0.44
56.00	0.530	5.68	4.37	0.75	0.45	0.45
58.00	0.572	6.13	4.81	0.82	0.44	0.45
59.00	0.628	6.73	5.39	0.92	1.20	0.88
59.50	0.678	7.27	5.91	1.01	2.14	1.30
59.75	0.828	8.88	7.49	1.28	12.92	2.68
60.00	1.015	10.88	9.46	1.62	16.20	5.32
60.50	1.088	11.66	10.24	1.75	3.17	5.60
61.00	1.126	12.07	10.64	1.82	1.65	4.17
62.00	1.177	12.62	11.18	1.91	1.11	2.26
64.00	1.213	13.01	11.57	1.98	0.40	0.66
68.00	1.286	13.79	12.34	2.11	0.40	0.40
72.00	1.359	14.57	13.12	2.24	0.40	0.40

SBUH (MLakes).xlsx

Santa Barbara Urban Hydrograph (25 Year)



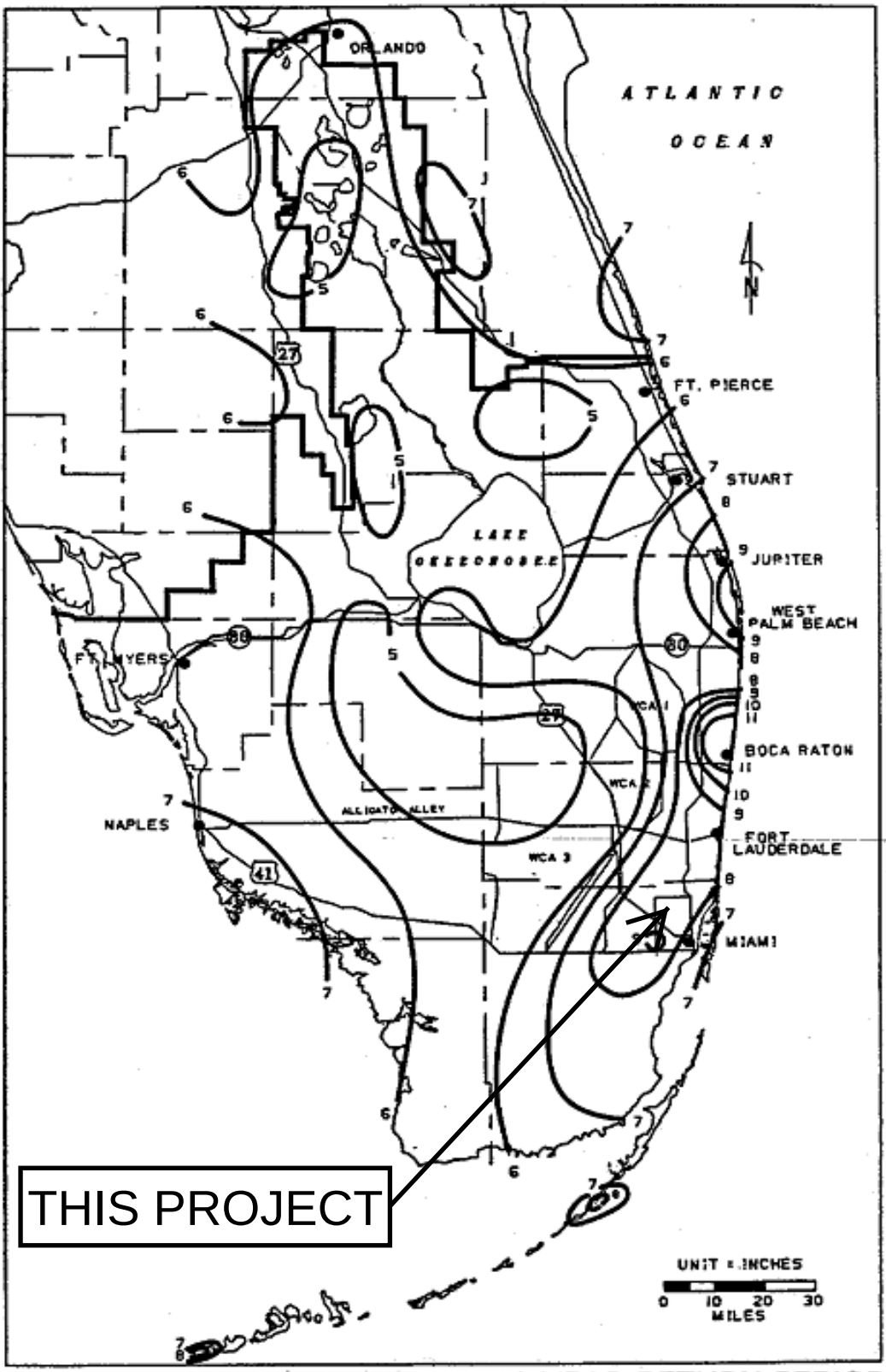


FIGURE C-4. 1-DAY RAINFALL: 10-YEAR RETURN PERIOD

Project Name: Zone2017-0614
Reviewer: 2a
Project Number: U.S.S.
  Period Begin: Jan 25, 2018;0000 hr End: Jan 28, 2018;0000 hr Duration: 72 hr
  Time Step: 0.2 hr,   Iterations: 10

Basin 1: Retention Area

  Method: Santa Barbara Unit Hydrograph
  Rainfall Distribution: SFWMD - 24 hr
  Design Frequency: 10 year
  1 Day Rainfall: 7 inches
  Area: 0.693003 acres
  Ground Storage: 1.3 inches
  Time of Concentration: 1 hours
  Initial Stage: 6 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
6.00	0.00
6.50	0.35
7.00	0.69
7.50	1.04
8.00	1.39
8.50	1.73
9.00	2.08
9.50	2.43

Basin 2: Paving

  Method: Santa Barbara Unit Hydrograph
  Rainfall Distribution: SFWMD - 24 hr
  Design Frequency: 10 year
  1 Day Rainfall: 7 inches
  Area: 1.189 acres
  Ground Storage: 1.3 inches
  Time of Concentration: 1 hours
  Initial Stage: 7.3 ft NGVD

Stage (ft NGVD)	Storage (acre-ft)
7.30	0.00
7.50	0.01
8.00	0.16
8.50	0.48
9.00	0.95
9.50	1.55

STRUCTURE MAXIMUM AND MINIMUM DISCHARGES

Struc	Max (cfs)	Time (hr)	Min (cfs)	Time (hr)

BASIN MAXIMUM AND MINIMUM STAGES

Basin	Max (ft)	Time (hr)	Min (ft)	Time (hr)
Retention Area	6.47	35.00	6.00	0.00
Paving	8.59	34.80	7.30	0.00

BASIN WATER BUDGETS (all units in acre-ft)

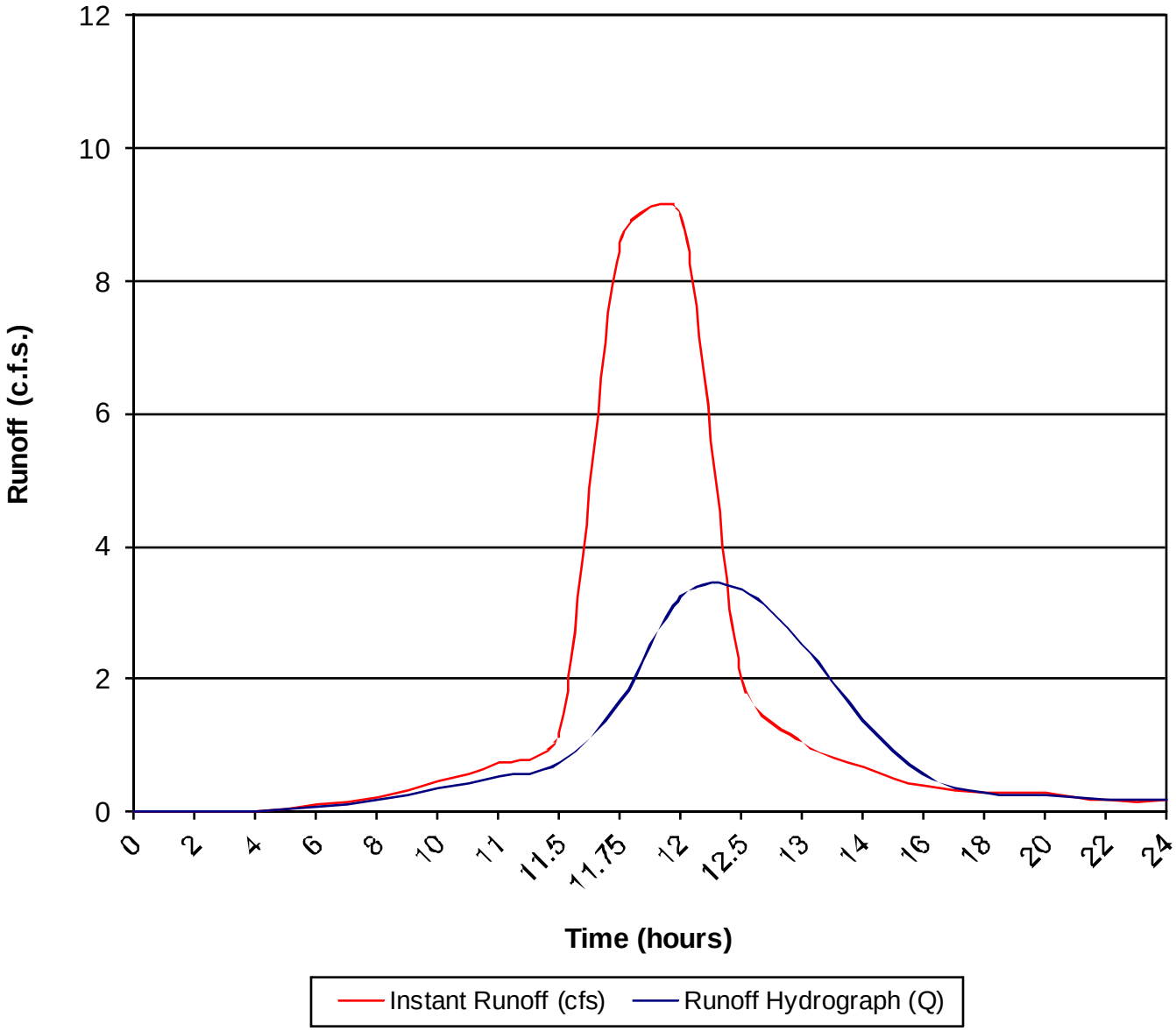
Basin	Total Runoff	Structure Inflow	Structure Outflow	Initial Storage	Final Storage	Residual
Retention Area	0.33	0.00	0.00	0.00	0.33	0.00
Paving	0.56	0.00	0.00	0.00	0.56	0.00

Miami Lakes Office Building
10 Year - 24 hour Event

Time of Concentration (Hr.):	1.00
Impervious Area (Acres):	1.03
Pervious Area (Acres):	1.02
Total Land Area (Acres):	2.05
Pervious Percentage:	49.76%
Available Soil Storage (inches):	8.18
Weighted Soil Storage (inches):	1.30
Rainfall:	7.00
Frequency (year):	10
Duration (hours):	24

Time (Hours)	Ratio (P/P24)	Cumulative Rain (in)	Runoff (in)	Cumulative Runoff (AF)	Instant Runoff (cfs)	Runoff Hydrograph (Q)
0.00	0.000	0.00	0.00	0.00	0.00	0.00
2.00	0.020	0.14	0.00	0.00	0.00	0.00
4.00	0.045	0.32	0.00	0.00	0.01	0.00
6.00	0.083	0.58	0.06	0.01	0.10	0.06
8.00	0.137	0.96	0.24	0.04	0.23	0.18
10.00	0.213	1.49	0.60	0.10	0.46	0.36
11.00	0.269	1.88	0.90	0.15	0.73	0.52
11.50	0.319	2.23	1.19	0.20	1.20	0.74
11.75	0.488	3.42	2.24	0.38	8.58	1.66
12.00	0.656	4.59	3.33	0.57	8.99	3.24
12.50	0.729	5.10	3.82	0.65	2.02	3.35
13.00	0.767	5.37	4.07	0.70	1.04	2.52
14.00	0.818	5.73	4.42	0.75	0.66	1.38
16.00	0.880	6.16	4.83	0.83	0.39	0.56
18.00	0.916	6.41	5.08	0.87	0.28	0.29
20.00	0.952	6.66	5.32	0.91	0.28	0.25
22.00	0.976	6.83	5.49	0.94	0.17	0.18
24.00	1.000	7.00	5.65	0.97	0.17	0.17

Santa Barbara Urban Hydrograph (10 Year)



U.S. South Engineering
14347 Commerce Way
Miami, FL. 33016
(305) 558-2588

PROJECT: **Miami Lakes Office**
JOB No:

DATE: 11/1/2017

VOLUME TREATED (V) $V = C_w \times A \times R$

TRENCH LENGTH FORMULAS **

IF Ds > Du $$L = \frac{V}{K(2H_2D_U - D_U^2 + 2H_2D_S) + 1.39 \times 10^{-4}(WD_U)}$$

IF Du > Ds $$L = \frac{V}{K(H_2W + 2H_2D_U - D_U^2 + 2H_2D_S) + 1.39 \times 10^{-4}(WD_U)}$$

**** Taken from South Florida Water Management District Permitting Information Manual (2013).**

BASE DATA

Grate Elevation:	8.00	(N.G.V.D.)	
Water-Table Table Elev:	3.00	(WC 2.2.)	(Wt)
Trench Depth (ft):	15		
Bottom Trench Elevation:	-7.00		(bottom)
Impervious Area Coefficient:	0.90	(constant)	(Ci)
Sodded Swale Area Coefficient:	0.30	(constant)	(Cs)
Grassed Lot Area Coefficient:	0.40	(constant)	(Cg)
Roof Area Coefficient	1.00	(constant)	(Cr)
Rainfall (Inches):	6.20	(in.)	(i)
Trench width (ft):	4	(feet)	(w)
Depth to Water Table (H2)	5.00	(feet)	(H2)
Unsaturated Depth	3.33	(feet)	(Du)
Saturated Depth	10.00	(feet)	(Ds)

Table

Drainage Area	Total
Gross Area (ft2):	89408
Grassed Area (ft2):	44407
Lot Coverage (%):	100%
Impervious Area (ft2):	37579
Roof Area (ft2):	7422
Weighted Coefficient (Cw):	0.6600
Volume of Runoff (Acre-inch.)(Q):	8.3985
Conductivity Coefficient (k)	7.00E-04

Length of Trench required (LF):	**83**
Trench length provided (LF):	***170***

Project Name:
Project Number:

U.S. South Engineering

MASS DIAGRAM

Drainage Area Distribution

Gross Area ft²	Lot Area ft²	R/W Area ft²	Grass Area ft²	(Cg)	Roof Area ft²	(Cr)	Swale Area ft²	(Cs)	Impervious ft²	(Ci)
89408	89408	0	44407	0.3	7422	1.0	0	0.4	37579	0.9

System Storage Data

C factor for Pervious Areas:	0.35
C factor for Impervious Areas:	0.95
Total Drainage Area (Acres):	2.053
Impervious Areas (Acres):	1.033
Pervious Areas (Acres):	1.019
Exfiltration Rate (ft³/sec/LF):	0.0859
Run-off Coefficient (Cw):	0.610
Storage available (ft³/1000):	**0.9800**
Trench Length Required:	**71**
Trench Length Provided:	***140***
Trench Length Safety Factor:	2.0

Trench Data

Water Table Elevation (WC 2.2):	3.00
Grate Elevation:	8.00
Trench Width (ft):	4
Non-Saturated Top of Trench*:	6.50
Hydraulic Conductivity (k)(avg):	7.00E-04
Height to Water Table (ft)(H2):	5
Unsaturated Trench (ft)(Du):	3.50
Saturated Trench (ft)(Ds):	10
Pipe Diameter (inches):	18
Pipe Invert Elevation:	3.00
Percentage of Voids:	50%
Trench Depth (ft):	15

*(Assumes 24" minimum cover over pipe)

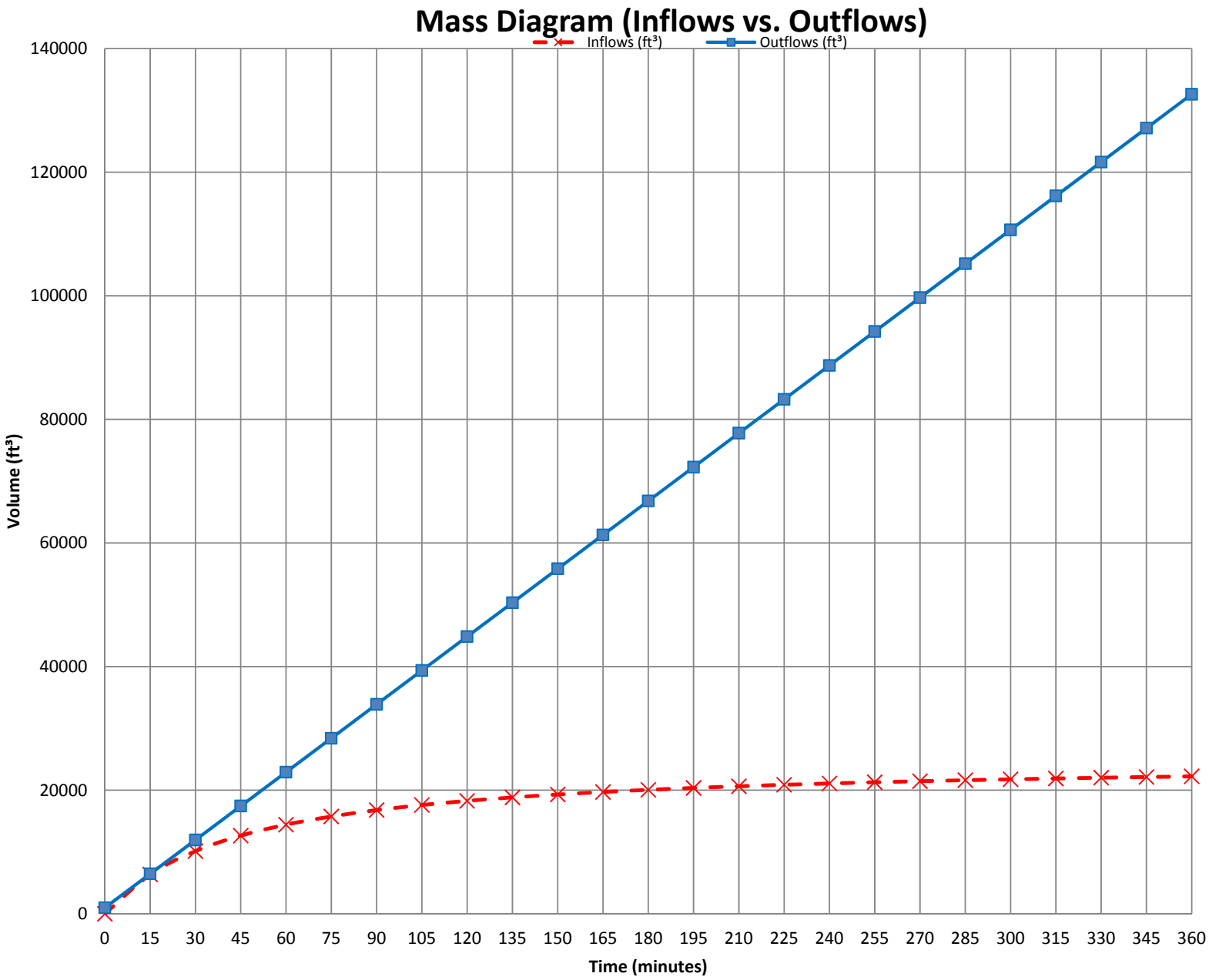
Run-off Generation Data

Volume of one inch of run-off (ft³):	7451
Storm Frequency (years):	5
Initial Time of Concentration (Tc):	10
Time to generate 1" of run-off (min.):	19

U.S. South Engineering

MASS DIAGRAM OF INFLOWS AND OUTFLOWS

Time (min.)	Intensity (in/hr)	Run-Off (ft^3/sec)	Inflows (ft^3)	Exfiltration (ft^3/sec)	Cumulative (ft^3)	System Storage(ft^3)	Outflows (ft^3)	Overflows (ft^3)
0	7.58	9.49	0	6.09	0	980	980	-980.0
15	5.64	7.07	6363	6.09	5484	980	6464	-101.4
30	4.50	5.63	10139	6.09	10969	980	11949	-1,809.6
45	3.74	4.68	12640	6.09	16453	980	17433	-4,793.6
60	3.20	4.00	14417	6.09	21938	980	22918	-8,500.3
75	2.79	3.50	15746	6.09	27422	980	28402	-12,655.9
90	2.48	3.11	16777	6.09	32906	980	33886	-17,109.5
105	2.23	2.79	17600	6.09	38391	980	39371	-21,770.9
120	2.03	2.54	18272	6.09	43875	980	44855	-26,583.0
135	1.86	2.32	18832	6.09	49360	980	50340	-31,508.0
150	1.71	2.14	19304	6.09	54844	980	55824	-36,519.5
165	1.59	1.99	19709	6.09	60328	980	61308	-41,599.0
180	1.48	1.86	20060	6.09	65813	980	66793	-46,732.8
195	1.39	1.74	20367	6.09	71297	980	72277	-51,910.6
210	1.31	1.64	20637	6.09	76782	980	77762	-57,124.6
225	1.23	1.55	20877	6.09	82266	980	83246	-62,368.8
240	1.17	1.46	21092	6.09	87750	980	88730	-67,638.5
255	1.11	1.39	21285	6.09	93235	980	94215	-72,929.6
270	1.06	1.32	21460	6.09	98719	980	99699	-78,239.3
285	1.01	1.26	21619	6.09	104203	980	105183	-83,564.9
300	0.97	1.21	21764	6.09	109688	980	110668	-88,904.3
315	0.92	1.16	21896	6.09	115172	980	116152	-94,255.9
330	0.89	1.11	22019	6.09	120657	980	121637	-99,618.1
345	0.85	1.07	22131	6.09	126141	980	127121	-104,989.8
360	0.82	1.03	22236	6.09	131625	980	132605	-110,369.8



Project No:

Project:

11/3/2017

Mass Diagram (MLakes).xlsx