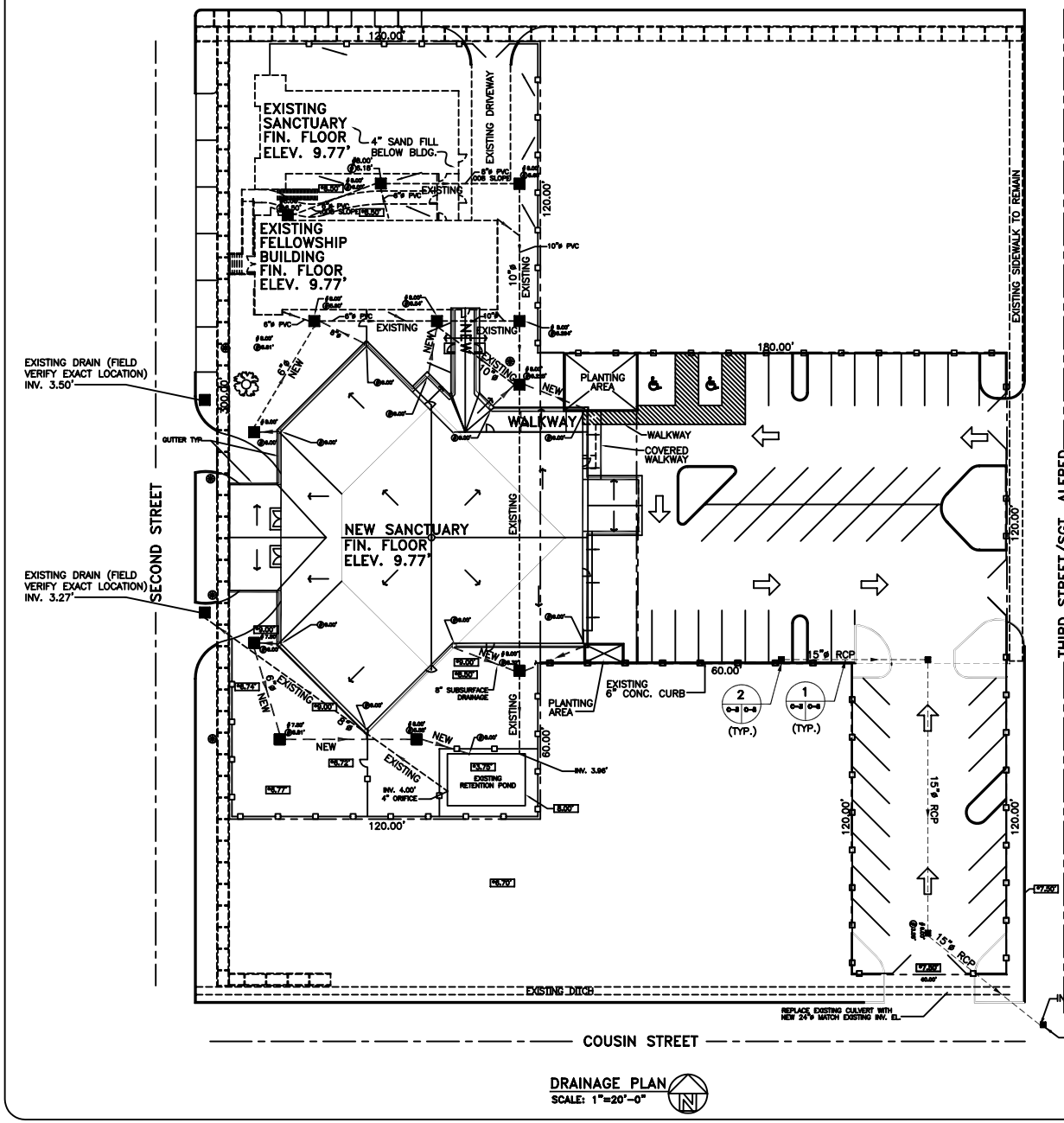

DRAINAGE PLAN
SCALE: 1"=20'-0"

PROJECT:	Starlight Baptist Church North West Corner			PROJECT:	Starlight Baptist Church South West Corner		
DRAINAGE RUN OFF CALCULATIONS – RATIONAL METHOD				DRAINAGE RUN OFF CALCULATIONS – RATIONAL METHOD			
PRIOR DEVELOPMENT 10 Year Frequency				PRIOR DEVELOPMENT 10 Year Frequency			
$Q_1 = CIA$				$Q_1 = CIA$			
Watertight Surfaces	c(1) = 0.9	4015 sqft =	0.092 Acres	Watertight Surfaces	c(1) = 0.9	0 sqft =	0.000 Acres
Gravel Surface	c(2) = 0.14	0 sqft =	0.000 Acres	Gravel Surface	c(2) = 0.14	0 sqft =	0.000 Acres
Green Space	c(3) = 0.21	18960 sqft =	0.435 Acres	Green Space	c(3) = 0.21	13123 sqft =	0.301 Acres
Summary	c = 0.33	22975 sqft =	0.527 Acres	Summary	c = 0.21	13123 sqft =	0.301 Acres
Duration (D) = Time of concentration (TC)				Duration (D) = Time of concentration (TC)			
TC = .7039(L^.3917)/(c^-1.1309)(S^-.1985)				TC = .7039(L^.3917)/(c^-1.1309)(S^-.1985)			
where	L = 119	Runoff length ft	Elev diff = 0.4	where	L = 111	Runoff length ft	Elev diff = 0.3
	c = 0.33	Runoff coef			c = 0.21	Runoff coef	
	S = 0.3361	Percent Slope			S = 0.2703	Percent Slope	
therefore	TC = D = 19.28	minutes or		therefore	TC = D = 33.74	minutes or	
and from Rainfall Intensity Table	I = 4.50	In/hr		and from Rainfall Intensity Table	I = 4.50	In/hr	
	Q_1 = 0.785 cfs	RUNOFF LIMIT 90%	0.706 cfs		Q_1 = 0.285 cfs	RUNOFF LIMIT 90%	0.256 cfs
POST DEVELOPMENT 10 Year Frequency				POST DEVELOPMENT 10 Year Frequency			
$Q_2 = CIA$				$Q_2 = CIA$			
Watertight Surfaces	c(1) = 0.9	11748 sqft =	0.270 Acres	Watertight Surfaces	c(1) = 0.9	5858 sqft =	0.134 Acres
Gravel Surface	c(2) = 0.14	0 sqft =	0.000 Acres	Gravel Surface	c(2) = 0.14	0 sqft =	0.000 Acres
Green Space	c(3) = 0.21	11212 sqft =	0.257 Acres	Green Space	c(3) = 0.21	7265 sqft =	0.167 Acres
Summary	c = 0.56	22960 sqft =	0.527 Acres	Summary	c = 0.52	13123 sqft =	0.301 Acres
D = Time of concentration (TC)				D = Time of concentration (TC)			
TC = .7039(L^.3917)/(c^-1.1309)(S^-.1985)				TC = .7039(L^.3917)/(c^-1.1309)(S^-.1985)			
where	L = 119	Runoff length ft	Elev diff = 0.6	where	L = 111	Runoff length ft	Elev diff = 0.4
	c = 0.56	Runoff coef			c = 0.52	Runoff coef	
	S = 0.5042	Percent Slope			S = 0.3804	Percent Slope	
therefore	TC = D = 10.04	minutes or		therefore	TC = D = 11.48	minutes or	
and from Rainfall Intensity Table	I = 7.60	In/hr		and from Rainfall Intensity Table	I = 7.60	In/hr	
	Q_2 = 2.256 cfs				Q_2 = 1.186 cfs		
RESULTS				RESULTS			
DETENTION REQUIRED Q_2-Q_1		1.549 cfs		DETENTION REQUIRED Q_2-Q_1		0.930 cfs	
ONE HOUR DETENTION		5577.7 cuft		ONE HOUR DETENTION		3347.3 cuft	
DETENTION DIMENSIONS	WIDTH	170 feet		DETENTION DIMENSIONS	WIDTH	120 feet	
	LENGTH	119 feet			LENGTH	111 feet	
	DEPTH	0.28 feet			DEPTH	0.25 feet	
DISCHARGE END AREA CALCULATIONS				DISCHARGE END AREA CALCULATIONS			
$Q = cA(2gH)^{1/2}$	where Q is allowable run off			$Q = cA(2gH)^{1/2}$	where Q is allowable run off		
Allowable run off	Q =	0.706 cfs		Allowable run off	Q =	0.256 cfs	
Friction loss factor	c =	0.98 coefficient		Friction loss factor	c =	0.98 coefficient	
Acceleration	g =	32.2 ft/ft/sec		Acceleration	g =	32.2 ft/ft/sec	
Height above Invert	H =	2.84 feet		Height above Invert	H =	2.84 feet	
End area	A =	0.05 sqft		End area	A =	0.02 sqft	
REQUIRED CONDUIT =		3.13 inch diameter		REQUIRED CONDUIT =		1.88 inch diameter	

LEGEND

- SLOPE LINES
- EXISTING DROP INLET
- NEW DROP INLET
- EXISTING DRAIN LINE
- NEW DRAIN LINE
- TOP OF GRATE ELEVATION
- INVERT ELEVATION
- NEW ELEVATIONS
- EXISTING ELEVATIONS
- EXISTING
- PROPERTY LINE
- NEW BUILDING
- FUTURE (TO BE BUILT)
- CENTERLINE OF STREET
- EXISTING FENCE
- ROOF PITCH DIRECTION
- DRAINAGE FLOW DIRECTION
- GUTTER

REVISED: 03-21-06

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DRAINAGE PLAN
STARLIGHT BAPTIST CHURCH
2100 SECOND STREET
SLIDELL, LOUISIANA
NEW SANCTUARY

SCALE: 1"=20'
FILE:
JOB NO. 1495a
DATE:05-16-05
SHEET C-3
OF