STORMWATER NARRATIVE

March 27, 2024

Project:

George H Gardner IV
149 Greyson Loop
Powells Point, NC

The subject lot is located on the southeast area of a light industrial subdivision known as "Currituck Industrial Park". This subdivision had all original design features such as roadways, swales, and detention ponds installed about twenty years ago.

At the time of construction, the developer incorporated an owners association to manage the common areas for the future. However, the association has been dissolved by the developer and the property owners to date have not formed a new management association to address the maintenance requirements of the common area features. While the existing stormwater collection and treatment system including the detention ponds appear to be functional, they are not maintained.

Currituck Planning has required the current applicant to manage all stormwater generated for his property in situ.

This lot has Conetoe soil and is well drained. The seasonal high water table is minus 38 inches at the area to be developed under this application. The transmissivity of the soil is very high. The existing ditch and front swale are dry this March even though the rainfall for the month is unusually high and possibly record breaking.

For the most part, the lot is flat with barely an elevation difference exceeding one foot. It slopes generally from SSW to NNE. Part of the lot has been cleared by the original developer leaving some field grasses and lots of sandspurs. The east side of the lot is wooded with a few larger pines and more smaller ones.

There are two significant features that play a role in the stormwater control scenario. There are remains of a natural berm at the east end on the lot which rises about five feet above the remaining lot elevation. It has trees and undergrowth and must be considered in the overall analysis of stormwater control.

The other more significant feature is the construction of the south side stormwater ditch. This ditch shown on the original subdivision plan as a drainage ditch running behind multiple lots to a stormwater detention pond on the southeast corner of the subdivision. This ditch is protected by a 25-foot rear easement.

However, the developer did more excavation on this particular lot, actually mining out an area about 50 feet wide creating a pond like area behind the area to be developed. This area has the ability to contain a very large volume of runoff, well beyond the amounts expected to be generated by developing this lot as planned.

As a precaution, a small swale was designed at the west side property line adjacent to the proposed building end to prevent runoff from the building drainage slope required by the NC Building Code from running onto the neighboring property.

Because of the features involved and the need to channel the runoff from the front of the lot to the rear for on-site containment, the more rigorous TR-55 analysis was used to determine the volume of runoff generated which needs to be retained and to verify a new east side lot swale is sufficient to drain the front swale.

The results show that a significant amount of the required five-year rainfall amounts infiltrate the sandy soil and do not even make it to the drainage swales. The fill percentage of the swales is less than 75% at the time of concentration. A second run was made for a 100-year storm and the swales still were not full.

The conclusion is that the proposed development as shown on the site plan and the stormwater plan have no impact on the surrounding properties. All stormwater can easily be contained on site in the area at the rear of the property as required, even as the subdivision stormwater system continues to function.

Prepared by:

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(NC, VA, NV (ret.))
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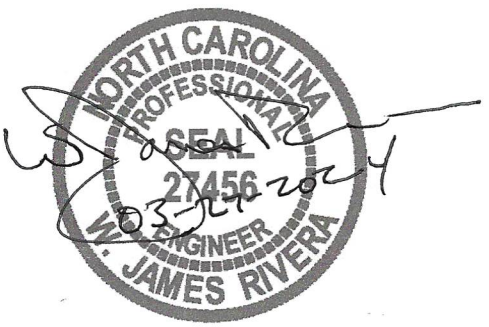

WinTR-55 Output Hydrograph
Upstream

Project: 149 Greyson Loop
Reach: (Pond) Storm: 5-Yr

3/28/2024

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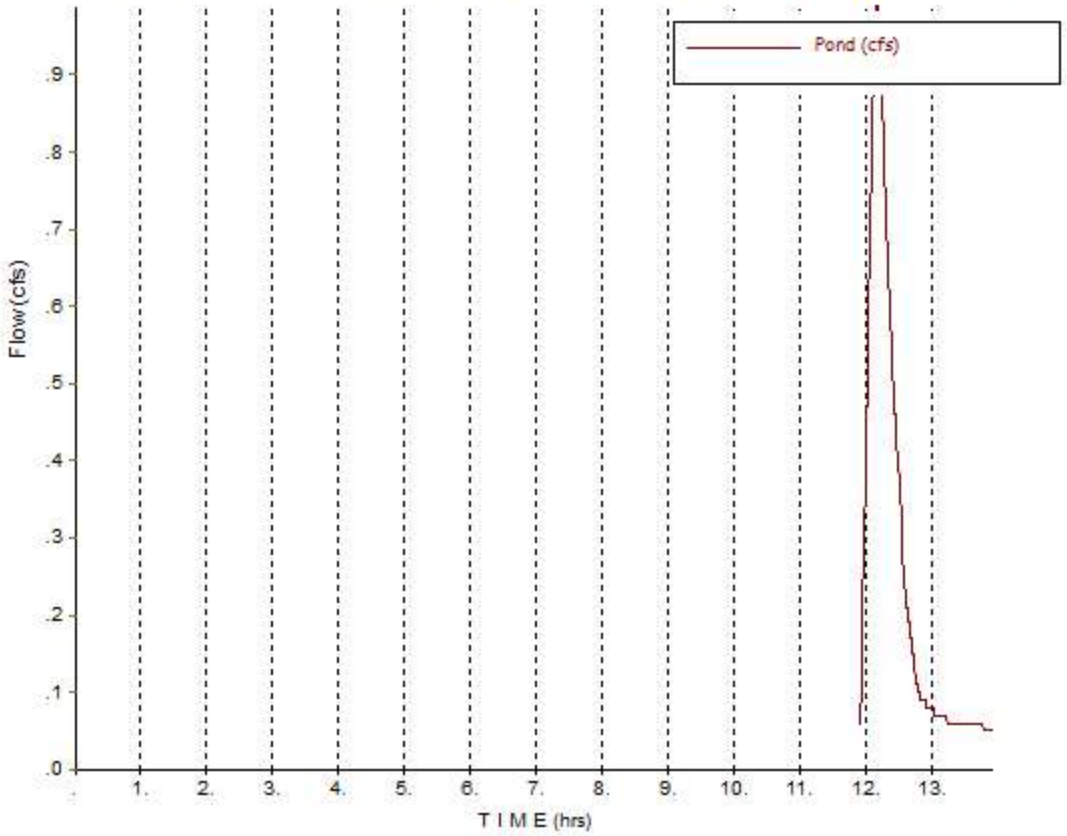

WinTR-55 Current Data Description

--- Identification Data ---

User: Jim Rivera
Project: 149 Greyson Loop
SubTitle: Front of Lot
State: North Carolina
County: Currituck NOAA
Filename: C:\Users\seaha\OneDrive\Documents\Active Projects\23030 George Gardner site plan\Front of Lot C

Date: 3/28/2024
Units: English
Areal Units: Acres

--- Sub-Area Data ---

Name	Description	Reach	Area(ac)	RCN	Tc
Right Fron	Front of Lot	RF	0.37	61	0.1
Right Road	Roadway	RF	0.1	83	0.1
Left Front	Woods Front	LF	0.14	43	.175
Left Road	Roadway	LF	0.04	83	0.1
East Woods	East Woods	East	0.14	43	.914
Right Side	Grass W of Bldg	West	0.02	39	0.1
South Bank	S Prop Line to CL ditch	Pond	0.11	49	0.1
South Side	Behind bldgs	Pond	0.25	50	0.1

Total area: 1.17 (ac)

--- Storm Data --

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.78	5.0	5.74	7.17	8.34	9.4	3.1

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

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149 Greyson Loop
Front of Lot
Currituck NOAA County, North Carolina

Storm Data

Rainfall Depth by Rainfall Return Period

2-Yr (in)	5-Yr (in)	10-Yr (in)	25-Yr (in)	50-Yr (in)	100-Yr (in)	1-Yr (in)
3.78	5.0	5.74	7.17	8.34	9.4	3.1

Storm Data Source: User-provided custom storm data
Rainfall Distribution Type: Type III
Dimensionless Unit Hydrograph: <standard>

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Currituck NOAA County, North Carolina

Watershed Peak Table (Trial #1)

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 5-Yr (cfs)
SUBAREAS	
Right Fron	0.50
Right Road	0.33
Left Front	.00
Left Road	0.12
East Woods	.00
Right Side	.00
South Bank	.00
South Side	0.13
REACHES	
RF	0.83
Down	0.80
East	0.90
Down	0.88
LF	0.91
Down	0.90
Pond	0.99
Down	0.95
West	.00
Down	.00
OUTLET	0.95

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149 Greyson Loop
Front of Lot
Currituck NOAA County, North Carolina

Watershed Peak Table (Trial #2)

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 5-Yr (cfs)
SUBAREAS	
Right Fron	0.50
Right Road	0.33
Left Front	.00
Left Road	0.12
East Woods	.00
Right Side	.00
South Bank	.00
South Side	0.13
REACHES	
RF	0.83
Down	0.80
East	0.90
Down	0.88
LF	0.91
Down	0.90
Pond	0.99
Down	0.97
West	.00
Down	.00
OUTLET	0.97

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149 Greyson Loop
Front of Lot
Currituck NOAA County, North Carolina

Watershed Peak Table (Trial #3)

Sub-Area or Reach Identifier	Peak Flow by Rainfall Return Period 5-Yr (cfs)
SUBAREAS	
Right Fron	0.50
Right Road	0.33
Left Front	.00
Left Road	0.12
East Woods	.00
Right Side	.00
South Bank	.00
South Side	0.13
REACHES	
RF	0.83
Down	0.80
East	0.90
Down	0.88
LF	0.91
Down	0.90
Pond	0.99
Down	0.98
West	.00
Down	.00
OUTLET	0.98

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Front of Lot
Currituck NOAA County, North Carolina

Hydrograph Peak/Peak Time Table (Trial #1)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 5-Yr (cfs) (hr)
SUBAREAS	
Right Fron	0.50
	12.12
Right Road	0.33
	12.11
Left Front	.00
	n/a
Left Road	0.12
	12.11
East Woods	.00
	n/a
Right Side	.00
	n/a
South Bank	.00
	n/a
South Side	0.13
	12.13
REACHES	
RF	0.83
	12.12
Down	0.80
	12.15
East	0.90
	12.16
Down	0.88
	12.18
LF	0.91
	12.15
Down	0.90
	12.16
Pond	0.99
	12.17
Down	0.95
	12.22
West	.00
	n/a
Down	.00
	n/a
OUTLET	0.95

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Front of Lot
Currituck NOAA County, North Carolina

Hydrograph Peak/Peak Time Table (Trial #2)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 5-Yr (cfs) (hr)
SUBAREAS	
Right Fron	0.50
	12.12
Right Road	0.33
	12.11
Left Front	.00
	n/a
Left Road	0.12
	12.11
East Woods	.00
	n/a
Right Side	.00
	n/a
South Bank	.00
	n/a
South Side	0.13
	12.13
REACHES	
RF	0.83
	12.12
Down	0.80
	12.15
East	0.90
	12.16
Down	0.88
	12.18
LF	0.91
	12.15
Down	0.90
	12.16
Pond	0.99
	12.17
Down	0.97
	12.20
West	.00
	n/a
Down	.00
	n/a
OUTLET	0.97

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Hydrograph Peak/Peak Time Table (Trial #3)

Sub-Area or Reach Identifier	Peak Flow and Peak Time (hr) by Rainfall Return Period 5-Yr (cfs) (hr)
SUBAREAS	
Right Fron	0.50
	12.12
Right Road	0.33
	12.11
Left Front	.00
	n/a
Left Road	0.12
	12.11
East Woods	.00
	n/a
Right Side	.00
	n/a
South Bank	.00
	n/a
South Side	0.13
	12.13
REACHES	
RF	0.83
	12.12
Down	0.80
	12.15
East	0.90
	12.16
Down	0.88
	12.18
LF	0.91
	12.15
Down	0.90
	12.16
Pond	0.99
	12.17
Down	0.98
	12.20
West	.00
	n/a
Down	.00
	n/a
OUTLET	0.98

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Front of Lot
Currituck NOAA County, North Carolina

Structure Output Table

Reach Identifier / Structure Identifier	Peak Flow (PF), Storage Volume (SV), Stage (STG) by Rainfall Return Period 5-Yr
Reach: Pond	
Pipe : Outlet	
12(in)	
PF (cfs)	0.95
SV (ac ft)	.00
STG (ft)	.09
15(in)	
PF (cfs)	0.97
SV (ac ft)	.00
STG (ft)	.06
18(in)	
PF (cfs)	0.98
SV (ac ft)	.00
STG (ft)	.04

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149 Greyson Loop
Front of Lot
Currituck NOAA County, North Carolina

Sub-Area Summary Table

Sub-Area Identifier	Drainage Area (ac)	Time of Concentration (hr)	Curve Number	Receiving Reach	Sub-Area Description
Right Fron	.37	0.100	61	RF	Front of Lot
Right Road	.10	0.100	83	RF	Roadway
Left Front	.14	0.175	43	LF	Woods Front
Left Road	.04	0.100	83	LF	Roadway
East Woods	.14	0.914	43	East	East Woods
Right Side	.02	0.100	39	West	Grass W of Bldg
South Bank	.11	0.100	49	Pond	S Prop Line to CL ditch
South Side	.25	0.100	50	Pond	Behind bldgs

Total Area: 1.17 (ac)

Jim Rivera 149 Greyson Loop
Front of Lot
Currituck NOAA County, North Carolina

Reach Summary Table

Reach Identifier	Receiving Reach Identifier	Reach Length (ft)	Routing Method
RF	LF	200	CHANNEL
East	Pond	80	CHANNEL
LF	East	90	CHANNEL
Pond	Outlet		STRUCTURE(Outlet)
West	Pond	60	CHANNEL

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149 Greyson Loop
Front of Lot
Currituck NOAA County, North Carolina

Sub-Area Time of Concentration Details

Sub-Area Identifier/	Flow Length (ft)	Slope (ft/ft)	Mannings's n	End Area (sq ft)	Wetted Perimeter (ft)	Velocity (ft/sec)	Travel Time (hr)
Right Fron							
SHEET	18	0.3300	0.240				0.018
					Time of Concentration		0.1
Right Road							
SHEET	23	0.0113	0.011				0.007
					Time of Concentration		0.1
Left Front							
SHEET	80	0.0625	0.400				0.175
					Time of Concentration		.175
Left Road							
SHEET	23	0.0113	0.011				0.007
					Time of Concentration		0.1
East Woods							
SHEET	100	0.0014	0.240				0.634
SHALLOW	608	0.0014	3.78				0.280
					Time of Concentration		.914
Right Side							
SHEET	16	0.0625	0.240				0.032
					Time of Concentration		0.1
South Bank							
SHEET	10	0.2500	0.240				0.013
					Time of Concentration		0.1
South Side							
SHEET	25	0.0184	0.240				0.075
					Time of Concentration		0.1

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Front of Lot
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Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
Right Fron	Open space; grass cover > 75%	(good)	A	.231	39
	Paved parking lots, roofs, driveways		A	.134	98
	Total Area / Weighted Curve Number			.37	61
				===	==
Right Road	Paved; open ditches (w/right-of-way)		A	.102	83
	Total Area / Weighted Curve Number			.1	83
				==	==
Left Front	Woods - grass combination	(fair)	A	.139	43
	Total Area / Weighted Curve Number			.14	43
				===	==
Left Road	Paved; open ditches (w/right-of-way)		A	.044	83
	Total Area / Weighted Curve Number			.04	83
				===	==
East Woods	Woods - grass combination	(fair)	A	.139	43
	Total Area / Weighted Curve Number			.14	43
				===	==
Right Side	Open space; grass cover > 75%	(good)	A	.017	39
	Total Area / Weighted Curve Number			.02	39
				===	==
South Bank	Open space; grass cover 50% to 75%	(fair)	A	.111	49
	Total Area / Weighted Curve Number			.11	49
				===	==
South Side	Open space; grass cover > 75%	(good)	A	.206	39
	Paved parking lots, roofs, driveways		A	.048	98
	Total Area / Weighted Curve Number			.25	50
				===	==

Jim Rivera 149 Greyson Loop
Front of Lot
Currituck NOAA County, North Carolina

Reach Channel Rating Details

Reach Identifier	Reach Length (ft)	Reach Manning's n	Friction Slope (ft/ft)	Bottom Width (ft)	Side Slope
RF	200	0.035	0.0023	0	3 :1
East	80	0.035	0.002	0	4 :1
LF	90	0.035	0.0023	0	3 :1
Pond	(This reach is a structure: Outlet)				
West	60	0.035	0.001	0	4 :1

Reach Identifier	Stage (ft)	Flow (cfs)	End Area (sq ft)	Top Width (ft)	Friction Slope (ft/ft)
RF	0.0	0.000	0	0	0.0023
	0.5	0.590	0.8	3	
	1.0	3.732	3	6	
	2.0	23.644	12	12	
	5.0	271.836	75.1	30	
	10.0	1725.277	300.1	60	
	20.0	10952.363	1200.2	120	
East	0.0	0.000	0	0	0.002
	0.5	0.743	1	4	
	1.0	4.705	4	8	
	2.0	29.822	16	16	
	5.0	342.984	100.1	40	
	10.0	2177.084	400.1	80	
	20.0	13821.304	1600.2	160	
LF	0.0	0.000	0	0	0.0023
	0.5	0.590	0.8	3	
	1.0	3.732	3	6	
	2.0	23.644	12	12	
	5.0	271.836	75.1	30	
	10.0	1725.277	300.1	60	
	20.0	10952.363	1200.2	120	
Pond	(This reach is a structure: Outlet)				
West	0.0	0.000	0	0	0.001
	0.5	0.526	1	4	
	1.0	3.327	4	8	
	2.0	21.087	16	16	
	5.0	242.527	100.1	40	
	10.0	1539.431	400.1	80	
	20.0	9773.138	1600.2	160	

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149 Greyson Loop
Front of Lot
Currituck NOAA County, North Carolina

Structure Description - User Entered

Reach Identifier	Surface Area @ Crest (ac)	Height Above Crest (ft)	Surface Area @ Ht Above (ac)	Pipe Diameter (in)	Head on Pipe (ft)	Weir Length (ft)
Pond						
	.032			12	2	
				15		
				18		

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149 Greyson Loop
Front of Lot
Currituck NOAA County, North Carolina

Structure Rating Details - Computed

Reach Idendifier	Stage (ft)	Pool Storage (ac ft)	Flows (cfs) @ Pipe Diameter Dia #1 12in	Dia #2 15in	Dia #3 18in
Outlet	0	0.00	0.000	0.000	0.000
	0.5	0.02	5.331	8.066	11.221
	1	0.03	5.961	9.078	12.723
	2	0.06	7.053	10.822	15.292
	5	0.16	9.611	14.873	21.206
	10	0.32	12.784	19.867	28.450
	20	0.64	17.480	27.234	39.101

OFFICIAL USE ONLY:
Permit Number: _____
Date Filed: _____
Date Approved: _____

Major Stormwater Plan
Form SW-002

Contact Information

APPLICANT:
Name: George H Gardner IV
Address: 4513 Beacham Lane
Kitty Hawk, NC 27949
Telephone: 252-455-2447
E-Mail Address: ghgfour@hotmail.com

PROPERTY OWNER:
Name: George H Gardner IV
Address: 513 Beacham Lane
Kitty Hawk, NC 27949
Telephone: 252-455-2447
E-Mail Address: ghgfour@hotmail.com

Property Information

Physical Street Address: 149 Greyson Loop, Powells Point, NC
Parcel Identification Number(s): 123E00000270000
FEMA Flood Zone Designation: none

Request

Project Description: George's Hobby Shop (personal), private auto storage
Total land disturbance activity: 10660 sf
Calculated volume of BMPs: 11600+ sf
Maximum lot coverage: 26338 (65% sf
Proposed lot coverage: 7160 sf

TYPE OF REQUEST

- ☐ Major subdivision (10-year, 24-hour rate)
- ☑ Major site plan (5-year, 24-hour rate)

METHOD USED TO CALCULATE PEAK DISCHARGE

- ☐ Rational Method
- ☑ NRCS Method (TR-55 and TR-20)
- ☐ Simple volume calculation for small sites (less than 10 acres)
- ☐ Alternative stormwater runoff storage analysis
- ☐ Downstream drainage capacity analysis

I hereby authorize county officials to enter my property for purposes of determining compliance. All information submitted and required as part of this process shall become public record.

Property Owner(s)/Applicant

3-27-24
Date

The table below depicts the design standards of the major stormwater plan application. Please make sure to include all applicable listed items to ensure all appropriate standards are reviewed.

Major Stormwater Plan

Design Standards Checklist

Date Received: _____

Project Name: George's Hobby Shop

Applicant/Property Owner: George H Gardner IV

Minor Stormwater Plan Design Standards Checklist		
General		
1	Property owner name and address.	✔
2	Site address and parcel identification number.	✔
3	North arrow and scale to be 1" = 100' or larger.	✔
Site Features		
4	Scaled drawing showing existing and proposed site features: Property lines with dimensions, acreage, streets, easements, structures (dimensions and square footage), fences, bulkheads, septic area (active and repair), utilities, vehicular use areas, driveways, and sidewalks.	✔
5	Approximate location of all designated Areas of Environmental Concern (AEC) or other such areas which are environmentally sensitive on the property, such as Maritime Forest, CAMA, 404, or 401 wetlands as defined by the appropriate agency.	✔
6	Existing and proposed ground elevations shown in one foot intervals. All elevation changes within the past six months shall be shown on the plan.	✔
8	Limits of all proposed fill, including the toe of fill slope and purpose of fill.	✔
9	Square footage of all existing and proposed impervious areas (structures, sidewalks, walkways, vehicular use areas regardless of surface material), including a description of surface materials.	✔
10	Existing and proposed drainage patterns, including direction of flow.	✔
11	Location, capacity, design plans (detention, retention, infiltration), and design discharge of existing and proposed stormwater management features.	✔
12	Elevation of the seasonal high water level as determined by a licensed soil scientist.	✔
13	Plant selection.	✔
Permits and Other Documentation		
14	NCDENR stormwater permit application (if 10,000sf or more of built upon area).	
15	NCDENR erosion and sedimentation control permit application (if one acre or more of land disturbance).	
16	NCDENR coastal area management act permit application, if applicable.	
17	Stormwater management narrative with supporting calculations.	✔
18	Rational Method Form SW-003 or NRCS Method Form SW-004	✔
19	Alternative stormwater runoff storage analysis and/or downstream drainage capacity analysis, if applicable	✔
20	Design spreadsheets for all BMPs (*Appendix F – Currituck County Stormwater Manual*).	
21	Detailed maintenance plan for all proposed BMPs.	

Certificate		
22	The major stormwater plan shall contain the following certificate: I, _____, owner/agent hereby certify the information included on this and attached pages is true and correct to the best of my knowledge. On the plan entitled _____, stormwater drainage improvements shall be installed according to these plans and specifications and approved by Currituck County. Yearly inspections are required as part of the stormwater plan. The owner is responsible for all maintenance required. Currituck County assumes no responsibility for the design, maintenance, or performance of the stormwater improvements. Date:_____ Owner/Agent:_____	✔

Major Stormwater Plan Submittal Checklist

Staff will use the following checklist to determine the completeness of your application. Please make sure all of the listed items are included. Staff shall not process an application for further review until it is determined to be complete.

Major Stormwater Plan Form SW-002

Submittal Checklist

Date Received: _____

Project Name: George's Hobby Shop

Applicant/Property Owner: George H Gardner IV

Major Stormwater Plan Form SW-002 Submittal Checklist		
1	Completed Major Stormwater Plan Form SW-002	
2	Completed Rational Method Form SW-003 or NRCS Method Form SW-004	
3	Stormwater plan	
4	NCDENR permit applications, if applicable	
5	3 copies of plans	
6	3 hard copies of ALL documents	
7	**1 PDF digital copy of all plans AND documents (ex. Compact Disk – e-mail not acceptable)**	

Comments

_____

_____

_____

NRCS Method Peak Flow
Form SW-004

Project Information

Project Location: 149 GREYSON LOOP, POWELLS POINT, NC

Parcel Identification Number(s): 123E 00000 270000

Check One: □ Pre-Development ☒ Post-Development

Calculations

Runoff Curve Number and Runoff

1. Runoff Curve Number (CN)

Soil Type	Cover Description	CN (Table 2-6)	Area (acres)	CN*A
	SEE NARRATIVE			
	& TR55			
		Totals		

$CN_{Weighted} = \frac{SCN*A}{SA} =$ _____

Use CN = _____

2. Runoff

	Storm #1	Storm #2	Storm #3
Frequency..... Yr	5		
Rainfall, P (24-hour) (Use Table 2-7)..... In	5.0		
Runoff, Q..... In			

Time of Concentration (Tc)

NOTES: Space for as many as two segments per flow type can be used for each worksheet.

Include a map, schematic, or description of flow segments

Sheet flow	**(Applicable to T_c only)**							
	Segment ID		Pre			Post		
1.	Surface description							
2.	Manning's roughness coeff., n (Table 2-9)							
3.	Flow Length, L (total L<= 300 ft)	ft						
4.	24-hr rainfall, P	in	4.0			6.0		
5.	Land Slope, s	ft / ft						
6.	$T_t = 0.42(nL)^{0.8} / P_2^{0.5} s^{0.4}$	min		+			=	

Shallow concentrated flow								
	Segment ID							
7.	Surface Description: paved (P) or unpaved (U)?							
8.	Flow Length, L	ft						
9.	Watercourse slope, s	ft / ft						
10.	Average velocity, V (Table 2-8)	ft / sec						
11.	$T_t = L / V$	min		+			=	

Channel flow								
	Segment ID							
	Pipe (P) or Channel (C)?							
	If pipe, enter D (in): See TR-55							
	If channel, enter bottom width:							
	If channel, enter side slopes (_:1):							
12.	Cross sectional flow area, a	sq ft						
13.	Wetted perimeter, w_p	ft						
14.	Hydraulic radius, $r = a / w_p$	ft						
15.	Channel slope, s	ft / ft						
16.	Manning's roughness coeff., n							
17.	$V = 1.49\ r^{0.67} s^{0.5} / n$	ft / sec						
18.	Flow length, L	ft						
19.	$T_t = L / 60V$	min		+			=	
20.	Watershed or subarea T_c or T_t (add T_t in steps 6, 11, 19)							min

Graphical Peak Discharge

1. Data:

   Drainage Area, Am = _____ sq mi (acres/640)

   Runoff Curve Number, CN = _____ (From Runoff Curve Number Worksheet)

   Time of Concentration, Tc = _____ hr (From Time of Concentration Worksheet)

   Rainfall Distribution = Type III

   Pond and swamp areas spread throughout watershed = _____ % of A_m (_____ acres covered)

			Storm #1	Storm #2	Storm #3
2.	Frequency	yr			
3.	Rainfall, P (24-hour)	in			
4.	Initial abstraction, I_a (Use CN)	in			
5.	Compute I_a/P				
6.	Unit peak discharge, q_u (use T_c and I_a/P with Figure 2-9)	csm/in			
7.	Runoff, Q (From Runoff Curve Number Worksheet)	in			
8.	Pond and swamp adjustment factor, F_p (Use Table 2-10)				
9.	Peak discharge, Q_p (Where $Q_p = q_u A_m Q F_p$)	cfs	0.99		

Applicant AGENT

03/27/2024
Date

Catalog Number	
Notes	
Type	

Contractor Select™

TWR LED

LED Wall Pack
Adjustable+Switchable+Photocell

The Lithonia Lighting® TWR wall packs combine the power of the latest generation of LEDs in a popular and classic day-form to provide exceptional energy savings. These wall packs give ultimate versatility to both the distributor and contractor by offering 18 configurations in one product with their standard Adjustable Lumen Output (ALO), Switchable color temperature (SWW2), and adjustable photocell (PE) features.

Adjustable Lumen Output ALO

Switchable CCT SWW2

Dusk-to-Dawn Operation PE

DLC LISTED PREMIUM | DLC LISTED | 5 YEAR warranty | 65 IP RATED | UL CERTIFIED | WET LOCATION™ | LED

FEATURES:

- Two sizes deliver from 2,300 lumens up to 16,100 lumens, replacing 70W to 400W HID luminaires
- Energy savings of up to 86% when replacing HID wall packs with less than two year paybacks
- Three power levels of adjustable lumen output. Switchable CCT(3000K/4000K/5000K) offers warm, cool and daylight in a single fixture
- Standard photocell can be turned on or off
- IP65 rated, Die-cast aluminum housing and borosilicate glass lens
- Up to 155 LPW

Catalog Number	Adjustable Lumen Output ALO			Switchable CCT SWW2	Dusk-to-Dawn Operation PE	Input Voltage	CRI
TWR1 LED ALO SWW2 UVOLT PE DDBTXD	2,300 Lumens	5,300 Lumens	8,500 Lumens*	Switchable 3000K, 4000K*, 5000K	Included Standard, Selectable On*/Off	120-347V	80CRI
TWR2 LED ALO SWW2 UVOLT PE DDBTXD	8,200 Lumens	12,100 Lumens	16,100 Lumens*				

* - Default out of the box settings

Made To Order Options

Ci Code	Input Voltage	Catalog Number	UPC	Number of fixtures per pallet	Traditional Replacement
*280GX1	120-277V	TWR1 LED ALO SWW2 MVOLT PE E7WC DDBTXD	00196183389954	60	70W - 250W HID
*2822T3	480V	TWR2 LED ALO SWW2 480 DDBTXD	00196183765819	32	250W - 400W HID

* Note: Made to order options are available with normal lead time

TWR LED Stock Configuations

Catalog Number	UPC	Ci Code	Number of fixtures per pallet	Traditional Replacement
TWR1 LED ALO SWW2 UVOLT PE DDBTXD	00196183389947	*280GWW	50	70W - 250W HID
TWR2 LED ALO SWW2 UVOLT PE DDBTXD	00196183390028	*280GX5	40	250W - 400W HID

Specifications

INTENDED USE:
The TWR LED combines traditional wall pack design with latest generation LEDs to provide an energy-efficient, low maintenance LED wall pack suitable for replacing up to 400W Metal Halide fixtures. The traditional shape helps maintain building aesthetics when replacing only a portion of your building's wall packs. TWR LED is ideal for outdoor applications such as carports, loading areas, self storage and parking areas.

CONSTRUCTION:
Rugged cast-aluminum housing with bronze polyester powder paint for lasting durability. Door is hinged on the side and can be detached for easy installation and service. Castings are sealed with a one-piece gasket to inhibit the entrance of external contaminants. Rated for outdoor installations, -40°C minimum ambient.

ELECTRICAL:
Light engine consists of long-life, high-efficacy LEDs mounted on an internal aluminum heat sink to maximize heat dissipation and promote long life. LEDs maintain 90% of light output at 50,000 hours of service. (LED lifespan based on IESNA LM-80-08 results and calculated per IESNA TM-21-11 methodology. The UVOLT driver operates on any line voltage from 120-347V (50/60Hz). All luminaires have 6kV surge protection. There are no user serviceable parts. The fixture is supplied with a 0-10V driver and is dimmable by 0-10V controls.

BATTERY SPECS:
Emergency battery backup E7WC is a 7 Watt back up battery that delivers up to 1,000 lumens in emergency mode. The lowest operating temperature is -20°C and is compatible with the MVOLT model TWR1.

INSTALLATION
Designed for wall mounting above four feet from ground. Housing is configured for mounting directly over a standard 4" outlet box (by others) or for surface wiring via any of four convenient 1/2" threaded conduit entry hubs.

LISTINGS:
UL Listed to U.S. and Canadian safety standards for wet locations. Tested in accordance with IESNA LM-79 and LM-80 standards.

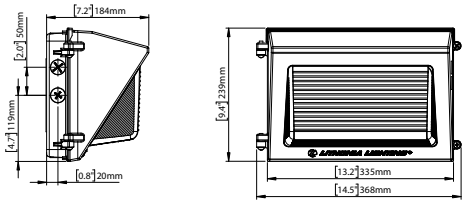
DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY:
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

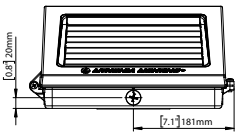
Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Dimensions

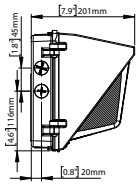
TWR1:
Width: 13.2" / 33.5cm
Height: 9.4" / 23.9cm
Depth: 7.2" / 18.4cm
Weight: 7.5lbs (3.4kg)

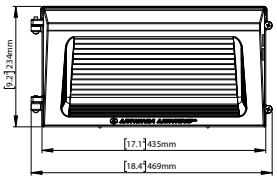


TWR1 E7WC:
Width: 15.25" / 38.74cm
Height: 10.75" / 27.31cm
Depth: 8.75" / 22.23cm
Weight: 9.66lbs (4.38kg)

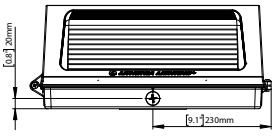


TWR2:
Width: 17.1" / 43.5cm
Height: 9.2" / 23.4cm
Depth: 7.9" / 20.1cm
Weight: 12.1lbs (5.5kg)





All dimensions are inches (centimeters) unless otherwise indicated.



LUMEN OUTPUT:

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79.

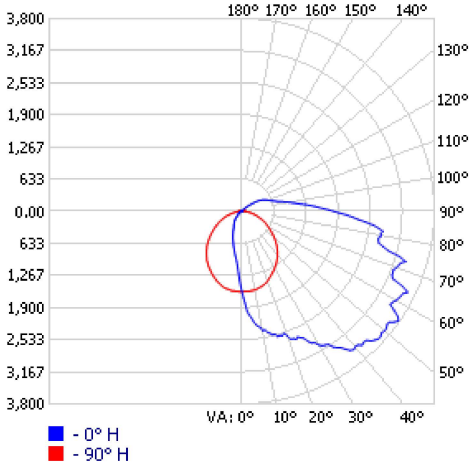
Size	Lumen Output	Input Wattage	CCT/80CRI	Delivered Lumens	Lumens Per Watt @ 4000K, 80CRI
TWR1	2,300	16W	3000K	2,295	145
			4000K	2,292	
			5000K	2,359	
	5,300	36W	3000K	5,277	151
			4000K	5,347	
			5000K	5,390	
	8,500	59W	3000K	8,400	148
			4000K	8,581	
			5000K	8,523	

Size	Lumen Output	Input Wattage	CCT/80CRI	Delivered Lumens	Lumens Per Watt @ 4000K, 80CRI
TWR2	8,200	55W	3000K	8,132	155
			4000K	8,427	
			5000K	8,290	
	12,100	82W	3000K	11,875	152
			4000K	12,449	
			5000K	12,037	
	16,100	112W	3000K	15,794	147
			4000K	16,270	
			5000K	16,262	

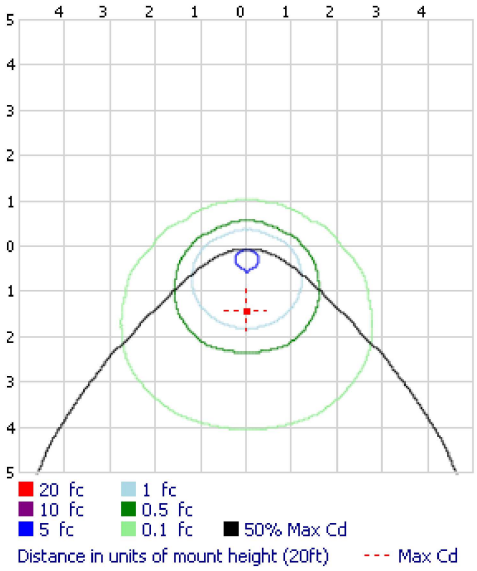
OUTDOOR PHOTOMETRIC REPORT
CATALOG: TWR1 LED ALO-HIGH 40K UVOLT

Test #:	BACL TWR P9
Catalog:	TWR1 LED ALO-HIGH 40K UVOLT
Description:	TWR1 LED, High Lumen Setting, 4000K Setting, 120-347V
Series:	TWR1 LED Wall Pack
Lamp Output:	Total luminaire Lumens: 8581.1, absolute photometry *
Input Wattage:	57.9
Luminous Opening:	Rectangle (L: 10.8", W: 6.36")
Max Cd:	3,772.6 at Horizontal: 0°, Vertical: 55°
Roadway Class:	VERY SHORT, TYPE IV

Polar Candela



Isoilluminance



*Test based on absolute photometry where lamp lumens=lumens total.
*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	1,285.9	15%
0-40	2,217.2	25.8%
0-60	4,554.3	53.1%
60-90	3,045.0	35.5%
70-100	2,308.8	26.9%
90-120	855.8	10%
0-90	7,599.3	88.6%
90-180	981.9	11.4%
0-180	8,581.1	100%

Lumens Per Zone

Zone	Lumens	% Total	Zone	Lumens	% Total
0-10	151.0	1.8%	90-100	443.6	5.2%
10-20	441.0	5.1%	100-110	252.7	2.9%
20-30	694.0	8.1%	110-120	159.6	1.9%
30-40	931.3	10.9%	120-130	82.5	1%
40-50	1,123.2	13.1%	130-140	30.4	0.4%
50-60	1,213.9	14.1%	140-150	8.3	0.1%
60-70	1,179.8	13.7%	150-160	3.1	0%
70-80	1,056.7	12.3%	160-170	1.4	0%
80-90	808.5	9.4%	170-180	0.3	0%

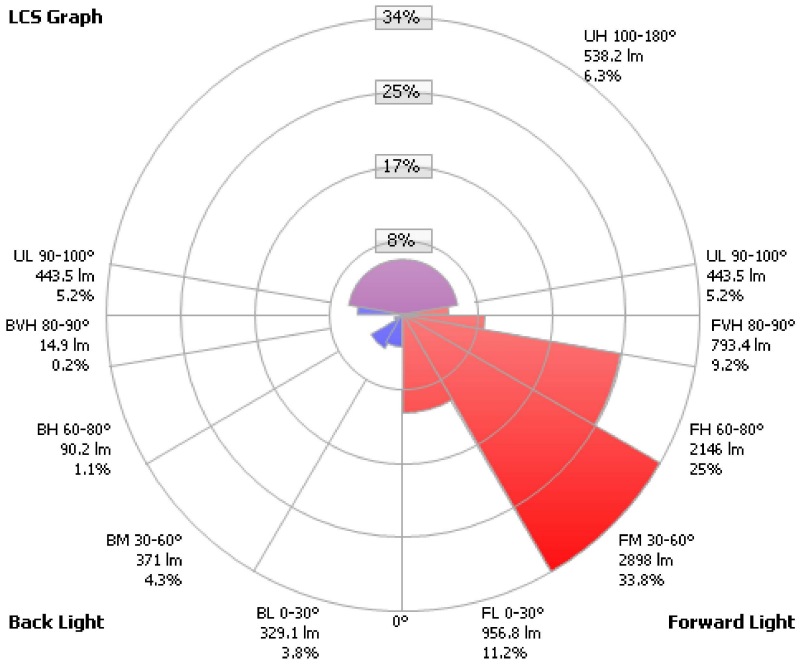
Roadway Summary

Distribution:	TYPE IV, VERY SHORT	
Max Cd, 90 Deg Vert:		1,814.0
Max Cd, 80 to <90 Deg:		2,810.9
	Lumens	% Lamp
Downward Street Side:	6,794.2	79.2%
Downward House Side:	805.2	9.4%
Downward Total:	7,599.4	88.6%
Upward Street Side:	954.0	11.1%
Upward House Side:	27.7	0.3%
Upward Total:	981.7	11.4%
Total Lumens:	8,581.0	100%

LCS Table

BUG Rating	**B1 - U4 - G5**	
Forward Light	Lumens	Lumens %
Low(0-30):	956.8	11.2%
Medium(30-60):	2,898.0	33.8%
High(60-80):	2,146.0	25%
Very High(80-90):	793.4	9.2%
Back Light		
Low(0-30):	329.1	3.8%
Medium(30-60):	371.0	4.3%
High(60-80):	90.2	1.1%
Very High(80-90):	14.9	0.2%
Uplight		
Low(90-100):	443.5	5.2%
High(100-180):	538.2	6.3%
Trapped Light:	0.1	0%

LCS Graph



Scale = Max LCS %

Trapped Light: 0.1 lm, 0%

Candela Table - Type C

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584	1584
5	2104	2075	2023	1809	1584	1329	1179	1080	1049	1081	1177	1327	1579	1810	2009	2070	2104
10	2398	2330	2228	2014	1565	1141	929	849	821	852	928	1133	1560	1996	2223	2328	2398
15	2507	2511	2376	2097	1525	977	785	687	653	690	788	968	1521	2095	2339	2486	2507
20	2612	2557	2430	2142	1470	860	655	551	515	552	656	853	1455	2119	2427	2554	2612
25	2747	2709	2461	2129	1378	753	537	432	394	431	537	751	1376	2132	2453	2704	2747
30	3046	2903	2540	2130	1290	647	430	337	314	335	430	650	1291	2105	2537	2895	3046
35	3275	3042	2550	2057	1199	553	342	278	259	278	342	554	1200	2042	2564	3045	3275
40	3485	3315	2652	1970	1095	466	282	221	199	223	284	468	1090	1963	2687	3322	3485
45	3615	3378	2683	1912	977	387	230	156	132	158	230	387	980	1895	2730	3404	3615
50	3670	3511	2685	1789	844	315	175	103	93	104	174	312	854	1792	2732	3502	3670
55	**3773**	3459	2709	1668	717	256	123	71	59	71	122	249	718	1674	2736	3473	**3773**
60	3514	3293	2592	1498	599	209	82	40	40	41	81	201	600	1501	2609	3290	3514
65	3506	3314	2502	1334	482	164	49	16	12	17	49	156	488	1337	2527	3361	3506
70	3243	2997	2367	1218	379	120	24	1	1	1	24	113	378	1234	2404	3008	3243
75	2994	2987	2174	1096	273	85	14	1	1	1	12	79	267	1149	2214	2984	2994
80	2795	2546	1924	920	175	63	11	1	2	2	9	58	164	949	1940	2545	2795
85	2452	2369	1586	751	100	48	9	2	2	2	7	45	93	748	1570	2317	2452
90	1814	1696	1289	531	69	38	7	2	2	2	6	36	60	488	1213	1654	1814
95	1353	1241	871	343	59	29	6	2	3	3	5	26	52	331	821	1215	1353
100	990	907	636	267	56	23	5	3	3	3	5	20	52	275	642	893	990
105	753	698	497	220	54	19	4	3	3	4	4	16	51	223	506	692	753
110	617	575	407	180	49	15	3	3	3	4	4	13	45	176	414	571	617
115	531	487	332	146	42	11	3	3	3	4	4	10	38	141	333	482	531
120	443	390	250	118	34	9	3	3	3	4	3	8	30	110	247	388	443
125	311	259	181	91	25	7	2	3	3	4	3	7	22	81	179	257	311
130	185	171	125	67	19	6	2	3	3	3	3	6	16	58	124	169	185
135	101	101	82	46	13	5	2	3	3	3	3	5	13	39	80	104	101
140	43	49	52	31	10	4	2	3	3	3	3	4	9	26	49	51	43
145	11	24	35	20	6	3	2	3	3	3	3	3	7	16	31	25	11
150	8	16	23	12	4	2	2	2	3	3	3	3	5	10	20	16	8
155	11	13	17	6	2	2	2	2	2	3	3	3	4	5	15	13	11
160	14	15	11	4	2	2	2	2	2	2	3	3	4	4	10	15	14
165	12	11	5	4	2	2	2	2	2	2	3	3	4	4	5	11	12
170	5	4	4	3	2	2	2	2	2	2	3	3	4	4	4	4	5
175	4	3	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4
180	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3

PRE-BUILT STRUCTURES
QUALITY AT ITS BEST

P.O Box 350, Mount Airy, NC 27030
Toll Free: 1.800.787.2690 / 336.415.4736
Submit orders to:
carportorders@prebuiltstructures.com

ORDER FORM V10.0

CUSTOMER INFO

Customer Name	George Gardner - New				
Install Address	147 Greyson Loop,NC,27966,Powells Point				
City		State	NC	Zip Code	27966
County	Powells Point	Email	ghgfour@hotmail.com		
Cell #	(252) 455-2447	Phone #			

AUTHORIZED VENDOR

Order Date	07/19/2023
Dealer Name	Competitive Buildings - Carport Guy LL
Phone #	(336) 429-5500

***Installation lead time is subject to change without notice. Lead times begin after confirmation and approval of site prep.**

BUILDING INFO

Roof Style	Vertical
Building Type	Triple Wide Carpo...
Framing Gauge	☑ 14 Ga. ☐ 12 Ga.

SIZE

Width	Length	Height
30	100	12

Note: Frame is 1ft. shorter than roof length

COLORS

Roof	Beige
Sides/Ends	Beige
Trim	White

ANCHORING & RATING

Surface	Concrete
Ground Anchors	☐ Yes ☐ No
Wind/Snow Rating	155mph Wind Certified

Ready for Install? ☐ Yes ☐ No
Electricity Available? ☐ Yes ☐ No

LOT MUST BE LEVEL, NO MORE THAN 3" OFF-LEVEL AND CLEAR OF OBSTACLES OR UNIT MAY NOT BE INSTALLED.

Is your surface level? ☐ Yes ☐ No

Customer may incur extra labor fees if additional labor is required to install unit because of un-level surfaces, or for building over obstactles. Furthermore, inability of installation due to before mentioned circumstances could result in restocking fees

DESCRIPTION	QTY	UNIT PRICE	PRICE
30X100' (Roof 101') Vertical Roof	1	$19,560.00	$19,560.00
12' Height	1	$3,100.00	$3,100.00
155mph Wind Certified	1	$1,600.00	$1,600.00
3/12' Roof Pitch	1	$0.00	$0.00
Front Wall Closed Horizontal	1	$2,050.00	$2,050.00
Back Wall Closed Horizontal	1	$2,050.00	$2,050.00
Left Closed Horizontal	1	$2,465.00	$2,465.00
Right Closed Horizontal	1	$2,465.00	$2,465.00
10x10 ft Garage Door on Right Wall (Wind Certified)	1	$1,140.00	$1,140.00
10x10 ft Garage Door on Right Wall (Wind Certified)	1	$1,140.00	$1,140.00
10x10 ft Garage Door on Right Wall (Wind Certified)	1	$1,140.00	$1,140.00
10x10 ft Garage Door on Right Wall (Wind Certified)	1	$1,140.00	$1,140.00
36x80 inch Walk-in Door on Right Wall	1	$330.00	$330.00
Half Of Remaining Balance Due At Scheduling	1	$0.00	$0.00
Colored Screws	1	$0.00	$0.00
Wainscot Tan	1	$0.00	$0.00
Manufacturer Discount	1	$5,727.00	$5,727.00

TOTALS

Subtotal	
Tax	
Price	
Down Payment	
Initial down payment	
Pre-install payment due upon scheduling date.	
Labor Fees	
Equip. Fee	
Permit Fee	
Balance Due	
Due on installation day.	

PURCHASE AGREEMENT *(See reverse for terms and contitions)*

Pre-Built Structures LLC. reserves the right to correct any balance/pricing errors. Due to current market conditions Pre-Built Structures reserves the right to add a surcharge percentage to cover any additional manufacturing and material costs. Pre-Built Structures LLC. holds the right to repossess any buildings not paid in full upon installation. A labor charge will be added for any additional labor such as cutting posts to level carports, building over objects such as RV's & moving materials to remote locations, etc.. Customer is responsible for pulling permits. Customer understands that all building frames are 1' shorter than roof lengths.

By signing this ageement, customer understands and agrees with all terms and conditions found on both front and back of this document.

Customer Signature _____ Date _____

With customer present at time of installation, customer will sign below to signify acceptance of unit as installed.

Customer Signature _____ Date _____

3 % Credit Card Fee
Only if applicable.

All Orders will require payment of 50% after Down Payment to process order.

Office Use ☐ Credit Card ☐ Money Order ☐ Cashier's Check ☐ Other

Installer Signature