TOWN OF KILL DEVIL HILLS

Land Where Flight Began

PUBLIC NOTICE

NOTICE IS HEREBY GIVEN that the Town of Kill Devil Hills Street Improvement and Special Projects Committee will hold a meeting on Thursday, October 29, 2020 at 2:30 p.m. in the second floor Conference Room of the Administration Building, 102 Town Hall Drive, off Colington Road. This committee will follow all COVID-19 regulations and requirements currently in place for public meetings.
The items to be discussed are listed below:

AGENDA

Call to Order
Agenda Approval
Approval of the February 6, 2020 meeting minutes
Public Comment (Time limit of 3 minutes per person; 5 minutes per group)
Old Business
New Business

1. Election of Vice Chair
2. Street Improvement Recommendation for Fiscal Year 2020-2021 and Plan Year 2021-2022
3. NC-12 Pedestrian Crosswalk Lighting

Adjournment

Posted this 26th day of October 2020.

Jennifer Stecher
Administrative Assistant

Copies to: *Street Improvement and Special Projects Committee members in their meeting materials; Mayor & Board of Commissioners; Town Manager; all Town bulletin boards; KDH Sunshine List including all local news media; KDH Electronic Distribution List; website, social media; file*

Minutes of the February 6, 2020, Meeting of the Kill Devil Hills Street Improvement and Special Projects Committee (SISPC) held at 6:30 p.m. in the Meeting Room of the Administration Building, 102 Town Hall Drive, off Colington Road.

Members Present: Chair B.J. McAvoy, Kevin Cox, Billy Dorn (alternate), and Skip Jones

Members Absent: Ron Seidman, II and Vacant

Others Present: Pete Burkhimer, Town Engineer; Meredith Guns, Planning Director; Steve Albright, Public Services Director; Derek Dail, Assistant Public Services Director; and Harriet Banner, Administrative Assistant

Call to Order

Chair B.J. McAvoy called this meeting to order at 6:30 p.m., and thanked everyone for attending.

Agenda Approval

Skip Jones moved to approve the agenda for the meeting as presented. Kevin Cox seconded the motion, which was approved by a unanimous, 4-0, vote.

Approval of the Minutes of the November 19, 2019 Meeting Kevin, Billy

Commissioner Cox moved to approve the minutes of the November 19, 2019, SISPC meeting as presented. Billy Dorn seconded the motion, and the minutes were approved as presented, with a unanimous 4-0, vote.

Public Comment (Time limit of 3 minutes per person; 5 minutes per group)

Kurt Korte, 407 West Sportsman Drive, Kill Devil Hills – Mr. Korte stated he lives on West Sportsman Drive, a street which is categorized as "poor" condition. He inquired about the street's status.

Public Services Director Steve Albright provided a brief overview of Sportsman Drive. In 2008-2009, the Town had planned to improve make improvements to the road in a project that would surface the roadway, replace the water main, and improve drainage. A survey was conducted and 30% of the preliminary design was completed. During that process, a petition with 110 signatures was submitted to the Board of Commissioners requesting that no improvements be made to West Sportsman Dr. In response, Town Engineer Pete Burkhimer conducted several

tailgate meetings with the residents to explain in depth what improvements the Town was planning. Staff clarified with residents that the street was not going to be expanded to a 20-foot width. Mr. Albright said that in response to the resident feedback, Staff shelved the improvement plans for West Sportsman, and began work on First Street. He shared that the Town continues pothole maintenance on Sportsman with cold patch asphalt. Ms. Guns noted that Sportsman has a concrete base, so it has held up much better than others that are only asphalt.

Old Business

New Business

1. **Street Improvement Recommendation for Fiscal Year 2020-21 and Plan Year 2021-2022**

Ms. Guns highlighted the street improvement recommendation process: with a two-year budget, the street recommendations are prepared by Public Services for the Fiscal Year and for the following year, or Plan Year. Prior to the Plan Year, any drastic changes in street conditions are assessed for potential changes in priority. The recommendations are reviewed by the SISPC and then to the Board of Commissioners (BOC). BOC approval authorizes the engineering design work and the project bidding. Once bids for the recommended street improvements have been received, they are presented to the BOC for approval. She noted that during some Fiscal Years, the Plan Year recommendation designs have been approved. The SISPC is approving the FY 2020-2021, and the Plan Year 2021-2022 for budgeting purposes. Mr. Albright said that the normal budgeted amount is $700,000 – $1,000,000 annually. He noted that projects are planned to be geographically proximate to get the lowest project cost. Ms. Guns stated that at times a road may be selected for upgrades because of drainage. The group then reviewed streets projects from 2005 to the present, indicating the roadways that have been removed from the "poor" category.

Mr. Burkhimer reported on recent Town projects, which included the Whispering Pines project. He noted that West Hayman Boulevard along with a portion of Plymouth, Sixth Avenue, and Town Hall Drive had been paved this year. He stated that since 2005, over nine miles of poor streets have been improved to excellent condition. He said that was 14-15% of the Town's 63 miles of streets. Mr. Burkhimer stated that early work on streets required reconstruction to modern standards; however, there will be a time in the future when streets are just maintained, with just the top asphalt layer being done. When upgrading a street, the Town addresses the street's paving surface, any infrastructure like water lines, and any drainage in a systematic method at one time.

Ms. Guns stated that the BOC policy for over a decade has been that all existing improved Town streets would be brought up to a standard condition before any new paving

would be implemented. She highlighted paper streets on the Town map, which have been built and paved by individuals or developers.

She stated that all funding for water line infrastructure is from the Town's water fund, an enterprise fund completely separate from the Town's general fund and other allocation streams.

Commissioner McAvoy inquired about how the projects are originated. Mr. Burkhimer stated that he works closely with Public Services and also with Planning. He noted that the Town has worked diligently on the drainage infrastructure while striving to maintain or increase the quality of the Town's streets.

Mr. Cox inquired about the possibility of sidewalks along US 158 in front of the Wright Brothers Memorial. Mr. Albright said that if a sidewalk was installed in the N.C. Department of Transportation (NCDOT) right-of-way along US 158, the project would require the installation of curb and gutter for that whole section, which would greatly increase the project's expense. However, if the sidewalk was installed further from the roadway and away from the drainage ditch, the project would cost less, but it would be partially on National Park Service property and would take its participation. The group then reviewed current and completed sidewalks projects throughout Town.

Mr. Albright highlighted the streets recommendations, which were detailed with the meeting materials:

Autumn Project First Flight Village and Landing: Right-of-ways and drainage improvements include Cedar Drive, Captains Lane, Teakwood Lane, and Captains Circle. The estimated cost for the project, including street and drainage improvements, and waterline replacement is $603,000.

Spring Project Several poor right-of-ways between US 158 and NC 12, including East Helga, including overlay East Helga Street, sidewalk West Helga Street, East Fourth Street with drainage, construct Briggs Street with drainage, East Dean Street, and East Martin Street overlay. The estimated cost is $463,000.

Mr. Albright stated that this project addresses all of the east-west streets categorized as poor. He stated that a Commissioner had suggested the option of on-street parking for Briggs Street. Following a discussion about on-street parking for Briggs Street, Mr. Albright recommended that on-street parking and connecting it, or creating a "punch through," to Helga Street, be bidded out as an alternate option. Mr. Burkhimer said that four to six on-street parking spaces could be potentially created.

Mr. Jones moved to approve the 2020-2021 Street Improvement Recommendation (autumn and spring projects) as presented, with the added design work to complete Briggs Street through to East Helga and on-street parking, to be bid as alternatives. Mr. Cox seconded the motion, which passed with a unanimous, 4-0, vote.

Mr. Albright then provided an overview of the 2021-2022 Street Improvement Recommendation, which includes work on West Third Street, including extensive drainage improvements and replacement of asbestos-cement water mains, to Creek Street. Seminole Street also will be overlaid and a roadside drainage system installation is included. The estimated cost is $1,169,000.

Mr. Jones moved to approve the 2021-2022 Street Improvement Recommendation as presented. Mr. Cox seconded the motion, which was approved by a unanimous, 4-0, vote.

Adjournment

There being no other business before the Street Improvement and Special Projects Committee at this time, Commissioner McAvoy moved to adjourn the meeting. Mr. Jones seconded the motion, which carried by a unanimous, 4-0 vote, and the meeting adjourned.

It was 7:37 p.m.

[*Clerk's note*: CAC clerk Harriet Banner retired prior to the meeting minutes' submission, so Deputy Town Clerk James Michael O'Dell prepared the minutes from a recording of the meeting.]

Submitted by:

James Michael O'Dell
Deputy Town Clerk

Director of
Planning and Inspections
MEREDITH GUNS

Building Inspector
MARTY SHAW
CHARLES THUMAN

Code Enforcement Officer
JORDAN BLYTHE

THE TOWN OF KILL DEVIL HILLS
NORTH CAROLINA

Assistant Director of
Planning and Inspections
CAMERON RAY

Senior Planner
RYAN LANG

Zoning Administrator
DONNA ELLIOTT

PLANNING DEPARTMENT

October 26, 2020

Memorandum

To: Street Improvement/Special Project Subcommittee

From: Meredith B. Guns, Planning Director MBG

Subject: Meeting Thursday, October 29, 2020 at 2:30 pm

Attached to this memorandum is the packet for the Street Improvement/ Special Project Committee. The subcommittee will meet on **Thursday, October 29, 2020 at 2:30 pm in the Administration Conference Room (Second floor).** The agenda for the meeting will be as follows:

1. Street Improvement Recommendation for Fiscal Year 2020-2021 and Plan Year 2021-2022.
2. NC-12 Pedestrian Crosswalk Lighting – Initial Discussion

Director of
Planning and Inspections
MEREDITH GUNS

Building Inspector
MARTY SHAW
CHARLES THUMAN

Code Enforcement Officer
JORDAN BLYTHE

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PLANNING DEPARTMENT

October 29, 2020

Memorandum

To: Street Improvement/ Special Project Subcommittee

From: Meredith Guns, Planning Director MBG

Subject: Street Improvement Recommendation 2021-2022 Fiscal Year (FY)

Attached is a memorandum and spreadsheet from Pete Burkhimer, P.E. with American Engineering and Town Engineer. The spreadsheet outlines street recommendations for 2021-2022 FY, 2022-2023 plan year and beyond. Additionally, the accompanying spreadsheet summarizes the past several years of projects and the remaining Fair 3 and Poor Streets.

The 2021-2022 recommendation is West Third Street from US 158 to Creek Street, Seminole Street (southside) and drainage along US158 from West Fourth Street to West Third Street. Currently West Third Street from US158 to Creek Street is in Poor condition as well as Seminole from West Third to Indian. The Drainage improvements will tie into the new drainage at the Dare Centre and fix under sized, failing drainage and improve upstream drainage to West Durham Street. The estimated cost for the West Third Street project is $1,156,000.

Above is the base recommendation for the 2021-22 FY. However, it has been a desire of the town to install sidewalks in key high traveled locations. West Third Street meets this criteria, therefore two alternatives have been developed to include a complete sidewalk system for consideration. The alternatives are as follows (both include the base recommendation above):

1. Extend a sidewalk the remaining length of West Third to Bay Drive with no additional roadway improvements and limited drainage to accomplish the sidewalks. The total project cost for this alternative is $1,309,000 (approximately $42,000 more from the Street and Drainage Capital Fund). Labeled OPTION A+B on the engineers table.
2. Extend a sidewalk the remaining length of West Third to Bay Drive including replacement of asbestos water main, street overlay and drainage improvements. The total project cost for this alternative is $1,981,000. Labeled OPTION A+B+C on the engineers table.

At this time, staff would not recommend Option A+B+C because of the high cost and current condition of this portion of West Third Street. This portion of West Third Street will likely be on the list for drainage and roadway improvements in the next 10 years but it is not imperative at this time.

Staff would like to consider OPTION A+B because extending a sidewalk along West Third Street has been a priority due to the heavy vehicle and pedestrian traffic on this street. A complete sidewalk system would alleviate several safety concerns in this area and connect to the existing Bay Drive Multi-Use Path that extends from West First Street to Northern Town Line.

The 2022-23 plan year includes Wrightsville Boulevard from Goodard Street to Carolyn Drive (Ramada). The project proposed resurfacing of the roadway and establish a medium size storm drainage line as a major branch of the Memorial Blvd drainage system. This will dramatically improve the efficiency of the drainage system in this area.

Please be prepared to discuss the proposed recommendations and alternatives.

AMERICAN Engineering

October 23, 2020

The Kill Devil Hills Street Improvement and Special Projects Committee,
c/o Ms. Meredith Guns, Planning Director
Ms. Debora P. Diaz, Town Manager
P. O. Box 1719
Kill Devil Hills, NC 27948

By **e-mail**

Subject: Project ID **V20200 "B" – 2021/22 Street/Drainage Projects Recommendations**

Dear Committee Members, Ms. Diaz and Ms. Guns:

This is our annual update on your capital projects program and our recommendation looking forward.

In the following points, we'll recap some recent accomplishments and note some other points that are influencing our thinking for the future:

What have we been doing since last meeting?

1. 2020 has been another productive year:
    a. 2019/20 Project—Hayman Boulevard / Town Hall Drive / Sixth Avenue: We briefed you on this project at our last meeting, February 6, 2020. The work was about 75% complete at that time, and it was successfully brought to completion last spring.
    b. 2020/21 Fall and Spring Bid Packages: The last SISPC meeting and subsequent BOC action were delayed so we could include newly-seated board members. This put us a little later than desirable in getting started on surveying and design for the approved work. We broke it up as listed below. Note that the terms "Fall" and "Spring" turn out not to be seasonally specific, as they are both bid in the fall and will finish in the spring.
        i. Fall Bid Package: Project 1 is First Flight Village, Section 3, consisting of Cedar Drive's loop west of West First Street, plus one more block of Cedar Drive ending slightly beyond its intersection with Dogwood Lane; Captains Lane is also included. Project 2 is Landings, Section 3, consisting of all of Teakwood Lane and all of Captains Circle. These two projects will address the poor condition of those streets and the historically poor drainage in those areas.

ii. Spring Bid Package: This package involves five streets "between the highways." Project 3 consists of Briggs Street from East Arch Street toward/to East Helga Street; East Helga Street from US 158 to NC 12, and the short block of East Fourth Street from NC 12 to its end as an improved Town road. Alternates are included that would (a) install a sidewalk along the north side of West Helga Street from US 158 to Susan Drive and (b) push Briggs Street southward from its present terminus through to intersect with East Helga Street. Project 4 costs of all of East Martin Street, from US 158 to NC 12 and the short block of East Dean Street from US 158 through Wrightsville Boulevard. Alternates in Project 4 include (c) optional sidewalk on the north side of East Martin in the western two blocks and (d) providing four parallel parking spaces on the south side of E Martin just west of NC 12. In general, the Spring Bid Package projects include rehabilitating the streets, providing improved drainage and, in the cases of East Helga, West Helga and East Martin, making needed pedestrian improvements.

iii. Bid Results: Through the design process, as often tends to occur, we discovered items which needed to be addressed and the scope of the work increased. Bids for these rather large Bid Packages were received on Thursday, October 22 and will be considered by the Board of Commissioners at their November 9, 2020 meeting. As the bids came in higher than our preliminary budgeting estimates, we will be recommending to the BOC a series of options up to and including awarding all four (4) projects with all alternates.

iv. This year, we have continued to work our well-established plan to work through our list of streets which have been ranked "Poor" during the Street Condition Evaluation survey, performed every 5 years by the Public Services Department, as discussed more in paragraph 5.b below.

c. Other projects not tracked through the SISPC Process: Although SISPC is not directly involved in these, it's worth mentioning that the large and complex Elevated Water Tank replacement project is nearly complete; the tank itself has been on line since June 25, and the old tank was successfully demolished. The last element of the work, installing a third pump in our pump station, is under way now. We are seeking grant funding to assist with restoring and enhancing Meekins Field, which had to be taken out of service for the Tank project. Also, funded in significant part by a grant, the Centennial Path was

extended from Mustian Street along Hillside Drive, Fox Street and Baum Street, up to the Veterans Drive intersection.

What are the goals and principles of our capital projects?

2. As we always note in these reports, our long-held goal of is to fix our Poor streets. Over the next 3-4 years, we expect to transition to more and more resurfacing of streets and less total reconstruction, as we bring the older streets up to a more durable standard of construction. After that, we will want to be resurfacing our streets right when they need it; in other words, there won't be any more Poor streets, or, they won't be on the Poor list very long.
3. Another goal, as noted before, is the gradual replacement of asbestos-cement (AC) water mains throughout town. Our current Water System Master Plan includes a multi-year recommended program in increments of about $1.5 million at intervals of 2 or 3 years. As we consider street or street and drainage projects, we are always looking for the opportunity to replace AC water mains at the same time, which is more cost effective and causes less overall disruption to our residents.
4. We have made great progress in improving storm drainage and stormwater management in a number of areas, there are still many areas with drainage challenges. The 2015 project was a giant step on our ongoing Memorial Boulevard Backbone effort, but we'll need to push southward in the future (see the Wrightsville Boulevard project, the next big part of that effort, now hopefully only two years out). Elsewhere, when we do a street project, we'll probably include drainage work, using our "sock drain" strategy in most cases. For example, the recently completed Whispering Pines project as well as Hayman Boulevard include continuous sock drain for most of their length, which will provide significantly improved drainage service to these lower-elevation areas. The Fall and Spring Bid Packages we have just bid also include extensive "sock drain."
5. Considering the goals noted above, we reiterate the following points made in last year's report, which lay out our strategic goals and factors summarize what drives our recommendations with respect to future street and drainage projects:
    a. Having completed the well-received Multi-Use Path program, our attention has returned to repairing poor streets as noted below, as well as smaller-scale pedestrian projects and stormwater/drainage work.
    b. Fixing our Poor streets before they deteriorate to where a moderately-expensive overlay becomes an expensive reconstruction is just good

stewardship. Your staff completed in 2017 a complete re-inspection of Town-maintained road and streets. These inspections occur about every 5 years, and the next one will be due in two years. The rating system is based on a point system, considering pavement condition and storm drainage service (or the lack of it). The rating categories are Excellent, Good, Fair1, Fair2, Fair3 and Poor. Before the 2017 rating, we only had about 2.6 miles of the Town's 63 miles of road in Poor Condition. Per the 2017 inspection, another 3.77 miles dropped to Poor, bringing the Poor total up to 6.4 miles. The work of the last several years, plus what we just bid, have whittled the Poor street total back down to 3.2 miles, which we expect to lower further in the coming years.

c. We have, as noted, been making great progress in renewing our Poor streets, and we still have done so in recent years. However, inflation has eroded our buying power somewhat over the last five years since the recession passed. The Board of Commissioners has recognized this and supported increased funding levels in recent years. This inflationary trend has not leveled off and isn't likely to.

d. Even though we need to press hard on the core mission of repairing Poor streets, while doing so we should continue bringing drainage relief to problem areas and to move toward the very successful program of sock drain and roadside swales.

e. Where feasible, we should combine road improvement, drainage improvement and water main replacement into one project. This "holistic" approach saves money and disturbs our citizens less.

f. To continue with the progress made during the last 15 years in renewing our streets and improving our drainage systems, we will need to sustain levels of street and drainage funding at $1 million to $1.3 million per year, at least until we have all of our streets brought up to sound structural condition and provided with a proper stormwater management system. These recommended funding levels are over and above water system funding and sidewalk funding which may be applicable. For comparison's sake, once all of our poor streets have been brought to modern standards, all water lines have been replaced with modern materials and all areas have effective drainage installed, street maintenance will become essentially milling and overlaying 2.5 to 3 miles of street every year, about $500,000 to $600,000 at current prices.

What is recommended for the next three years?

With those guiding principles established, we offer the following project-specific recommendations on the attached spreadsheet. Let's consider the various portions of this spreadsheet:

Page 1: This contains the most important information. (The projects being bid and potentially awarded this fall are shown on Page 3 under Completed Projects.)

FY 2021-22: The upcoming year's candidate project is shown with **salmon shading**. The eastern end of **West Third Street** has one of the lower street condition ratings of our more heavily-traveled roads. Three Options, A, B and C, are shown here, with A as the Base Option, B adding Sidewalk Only west of Creek Street to Bay Drive, and C adding water main replacement and street improvements as well. So the combinations are A, A+B AND A+B+C.

West Third Street, OPTION A: It includes using a portion of our established $100,000 annual allocation to sidewalks and pedestrian ways to fund repairing the existing sidewalk along the southern side of the right of way and extending it westward to the project limits at Creek Street. A trunk drainage system will be extended upstream (west) from the US 158 system.

Also included is Seminole Street, from West Third Street southward to Indian Street. Its "Poor" pavement will be overlayed and a roadside drainage system installed. For both West Third and Seminole, their asbestos-cement water mains will be replaced with modern PVC lines.

Also included with this package is an important drainage improvement, which builds on the pipe improvements in front of the Fire Station and the Dare Centre, noted above. This work will include replacement of under-sized, off-grade and, in some cases, failing culverts under West Third Street, four commercial entrances, West Fourth Street and West Fifth Street. This will project the drainage benefits all the way up to the eastern portion of West Durham Street, where we experience frequent, significant flooding. Culvert sizes are expected to be 30" at West Fifth, increasing to 36" downstream.

The estimated total cost of West Third Street, Option A is $1,156,000, of which about $**749,000** represents street and drainage funding and the remaining $409,000 is water and sidewalk funding.

West Third Street, OPTION A+B: This starts with all the work of Option A, then extends sidewalk along the south side of West Third Street from Creek Street West to Bay Drive. To plan for extending the sidewalk effectively, full topo surveying will be needed of the entire right of way, so that the sidewalk is placed with future street, drainage and water improvements in mind. Some drainage work will be needed; especially the western two blocks, but only as needed to support the sidewalk work.

The estimated total cost of West Third Street, Option A + Option B is $1,309,000, of which about **$791,000** represents street and drainage funding($42,000 more than Option A alone) and the remaining $518,000 is water and sidewalk funding.

West Third Street, OPTION A+B+C: This starts with all the work of Option A + Option B, but adds in completing the replacement of all the remaining asbestos-cement water main out to Bay Drive, as well as renewing the street surface and completing the drainage work.

The estimated total cost of West Third Street, Option A + Option B + Option C is $1,981,000, of which about **$1,127,000** represents street and drainage funding ($379,000 more than Option A + Option B) and the remaining $854,000 is water and sidewalk funding.

FY 2022-23: The area with blue shading is intended to show the next year out, FY 2022-23, in which we recommend the design and bidding of a major project on a one-mile section of **Wrightsville Boulevard**, from Goddard Street all the way south to Carolyn Drive. This project would renew the surface, which is in Poor condition, but also establish a medium-size storm drainage line as a major branch of the Memorial Boulevard storm drainage system. This will not only benefit Wrightsville Boulevard, but will take pressure off the parallel portion of Memorial Boulevard, by (a) intercepting more than half the flow that part of the Memorial System is trying to carry and (b) lowering the groundwater in the whole area through the "sock drain" effect discussed above.

Nearly half of the cost of this overall project is expected to be water distribution system improvements. Portions of the water lines in Wrightsville are undersized, or asbestos-cement lines, and/or may need adjustment to make room for the storm drains. Water line adjustments associated with a street and drainage project typically involve multiple water service shutoffs. Thus, we are proposing, while we are doing pipe work in the area, to replace old, existing asbestos-cement water mains in four streets running between US 158 and NC 12.

The total cost for this project is anticipated to be $1,515.000, of which $881,000 is street and drainage funding and the remaining $634,000 is water funding.

FY 2023 and beyond: Th area with **purple shading** maps out the remainder of a multi-year plan we set forth several years ago.

Notable are the remaining elements of the Memorial Boulevard Trunk Drainage system, as two separate projects. If completed, we would also have worked through almost all of the remaining Poor streets.

As noted, SISPC and BOC certainly may add to or subtract from, and/or may re-order, this list. But, it represents a useful point of beginning for longer term capital project planning. Speaking of which, we recommend to staff, SISPC and BOC that an effort be initiated to create true 10-year plans for street, drainage and sidewalk work for the period 2022-2032. Projects for these categories of infrastructure should be integrated, as discussed above. Also, in support, a significant effort is needed to upgrade our Town-wide mapping, especially for drainage and water distribution.

All of Pages 2 and 3: This is a recap of the accomplishments of the last 15 years' projects. It is provided to help the Committee and others see our recommendation in its historical context.

All of Page 4: This page accomplishes two things:

In the **Drainage Only** sections, we note past projects completed in the past 15 years.

In the block after that is a list of drainage projects still remaining from the Town's 2005 Multi-Year Drainage Plan. Especially notable among these, **Memorial Avenue Ditch**, is discussed above.

In the final block, **POOR Streets Remaining**, we note the streets with a condition rating of 50 or lower, making them "Poor." This is a relatively short list, which will no doubt increase a bit with the 2022 Street Inspection Report. Those which are recommended to be done in the 10-Year Street Capital Program are shaded with the color to match each year's recommendations

Thank you for your careful consideration of our recommendations. We'll see you Thursday afternoon, October 29, 2020.

Very truly yours,

AMERICAN ENGINEERING ASSOCIATES, P.A.

W. P. Burkhimer, Jr., P. E., Senior Consultant

Cc: Mr. Steve Albright, Public Services Director
Ms. Meredith Guns, Planning Director

KILL DEVIL HILLS -- Street and Drainage Improvements Recommendations

10/23/20

FY 2020-21

Preliminary Cost (Including design and construction administration. All costs in $000.)

FALL Bid Package	Condition	Rating	Length	Remarks	Street	Drainage	WM	Total
First Flight Village 3 / Landings 3	F3-Poor	48±	3,460		$329	$208	$50	$586
Cedar Dr, Captains Ln, Teakwood Ln, Captains Cir; ex WM is PVC; overlay & drainage								
SPRING Bid Package								
Between the Highways			2,564		$261	$103	$100	$464
Overlay E Helga, E Fourth w Drainage	Poor	41±	1,130		$107	$45	$25	
Build Briggs w Drainage	Poor	26	234		$40	$9	$25	
E Dean St, overlay	Poor	50	300		$29	$12	$25	
E Martin St, overlay	Poor	51	900		$86	$36	$25	
			6,024	*1.14 miles Poor*		Total for FY 2020-21:		$1,050

(Actual PreBid Engineer's Estimate will be about 30% higher)

FY 2021-22 — Option A - Basic Design

Preliminary Cost (Including design and construction administration. All costs in $000.)

	Condition	Rating	Length	Remarks	Sidewalk Funding	Street	Drainage	WM	Total
W Third St (US 158 to Creek; extend drainage);					$50	$288	$460	$358	$1,156
W Third: drainage, overlay, WM, SW	Poor	43.3	1,194		$50	$93	$186	$155	
Seminole St (W Third-Indian) St, Dr, WM	Poor	46	930			$195	$74	$102	
US 158 Drainage (W Third to W Fifth)	replace 7 culverts w/36" & 30"						$200	$100	
			2,124	*0.40 miles Poor*					
				Street & Drainage Funding Required (Total above, minus WM & SW):					***$749***

FY 2021-22 — Option B - Extend only Sidewalk to Bay

Preliminary Cost (Including design and construction administration. All costs in $000.)

	Condition	Rating	Length	Remarks	Sidewalk Funding	Street	Drainage	WM	Total
W Third St (Sidewalk Creek to Bay)					$100	$0	$42	$10	$152
Topo, 5' walk, drainage req'd for walk	Fair3	58.6	2,587		$100	$0	$42	$10	
(about 530' of drainage)			0	*0.00 miles Poor*					
						Total, Option A + Option B			$1,309
				Street & Drainage Funding Required (Total above, minus WM & SW):					***$993***

FY 2021-22 — Option C - Ext. Street, WM & Drainage to Bay

Preliminary Cost (Including design and construction administration. All costs in $000.)

	Condition	Rating	Length	Remarks	Sidewalk Funding	Street	Drainage	WM	Total
W Third St (US 158 to Bay; WM, drainage & SW)					$0	$181	$155	$336	$673
Creek W: SW, WM, drainage, 1½" overla	Fair3	58.6	2,587		$0	$181	$155	$336	
			0	*0.00 miles Poor*					
						Total, Option A + Option B + Option C			$1,981
				Street & Drainage Funding Required (Total above, minus WM & SW):					***$1,127***

FY 2022-23

Preliminary Cost (Including design and construction administration. All costs in $000.)

	Condition	Rating	Length	Remarks	Street	Drainage	WM	Total
Wrightsville Blvd	**Poor**	46	5,340		$507	$374	$634	$1,515
Goddard to Carolyn; overlay, sock drain; upgrade 60% of WM					$507	$374	$288	
Neptune Drive, replace AC WM, 6"			940				$85	
Atlantic Street, replace AC WM, 8"			940				$103	
Clark Street, replace AC WM, 8"			950				$105	
Neptune Drive, replace AC WM, 6"			590				$53	
			5,340	*1.01 miles Poor*				
				Street & Drainage Funding Required (Total above, minus WM):				***$881***

FY 2023-24 and beyond

Preliminary Cost (Including design and construction administration. All costs in $000.)

(provided not as a formal recommendation, just to stimulate future thinking)

	Condition	Rating	Length	Remarks	Street	Drainage	WM	Total
Memorial Blvd Drainage Trunk, Phase 2			3,250		$309	$445	$50	$804
Carlton, Corrigan, Clark, DWs, "SOD"; overlay Mem.	F1, F2, P							
Memorial Blvd Drainage Trunk, Phase 3			3,300			$330	$80	$410
Martin thru Carolyn; parallel 30", WM adjustments								
W Sportsman & Dock			3,546		$378	$172	$266	$816
W Sportsman Dr	Poor	46	2,997		$285	$150	$240	
Dock Street	Poor	26.6	549		$93	$22	$26	
Ocean Acres WM Replacement	F3-Poor	55±	10,500		$840	$50	$798	$1,688
Replace All AC with PVC; overlay streets; drainage done urgently 2010-12. Pavement issue, Ocean Acres Dr from 2012								
				TOTAL OF 5 PROJECTS:	$1,527	$997	$1,194	$3,717
				AVERAGE SIZE:				$743

KILL DEVIL HILLS -- Street and Drainage Improvements Recommendations

10/23/20

Blocks Below Summarize Previous Years' Projects

Note: Older project printed small to save space; more recent ones larger on next page.

2005 Fall Project	(May 2003)			Poor Streets Fixed This Season: 400 ft		Cumulative Length, Poor Streets Fixed
Street	Street Condition		Length	Status		
Eighth Ave (Martin to Airstrip)	Semi-improved		450	Completed		
Ninth Ave (Martin to Airstrip)	Poor		400	Completed		400
Culvert repairs	Not applicable			Completed		

2006 Spring Project	(May 2003)			Poor Streets Fixed This Season: 380 ft		Cumulative Length, Poor Streets Fixed
Street	Street Condition		Length	Comments		
West Baum St	Unimproved		600	No Award Spring 05, Fall 05, Spring 06		
W. Fresh Pond/ W. Lake Drive Connector	Poor		380	Completed		780
Creek St (Third to Indian)	Drainage		600	Completed		
Cardinal St (800 Block)	Drainage		425	Completed		

2006 Fall Project	(May 2003)		3,650	Poor Streets Fixed This Season: 3,650 ft		Cumulative Length, Poor Streets Fixed
Street	Street Condition		Length	Comments		
Sir Walter Rd	Poor		1,920	Completed		2,700
Princess Anne Dr (Camellia to First)	Poor		720	Completed		3,420
Camellia Dr (Sir Walter to Princess Anne)	Poor		350	Completed		3,770
East Landing Dr (Cove to US 158)	Poor		660	Completed; overlay		4,430

2007 Spring Project	(2007 rating)		3,520	Poor Streets Fixed This Season: 3,520 ft		Cumulative Length, Poor Streets Fixed
Street	Street Condition		Length	Comments		
Seagate Ct	Poor		100	Completed		4,530
Sea Village La	Poor		500	Completed		5,030
Sea Wing Ct	Poor		100	Completed		5,130
Raymond Ave (Wilkinson to Arch)	Poor		1,625	Completed		6,755
Raymond Ave (Arch to Town Line)	Fair 3		600	No Award Spring 07, built 2013		
E. Chowan St (NC 12 to Raymond)	Poor		595	Completed		7,350
E. Sothel St (NC 12 to Raymond)	Poor		600	Completed		7,950

2007-08 Project	(2007 rating)		3,650	Poor Streets Fixed This Season: 2,350 ft		Cumulative Length, Poor Streets Fixed
Street	Street Condition		Length	Comments		
Bay Dr (Nixonton to Town Line)	Poor		2,350	Includes Multi-Purpose Trail		10,300
Bay Dr (Hayman to Nixonton)(Drainage)	Good		1,300	Drainage only; future trail		
Various Drainage Projects	(also listed Drainage Only below)					

2008-09 Project	(2007 rating)		6,482	Poor Streets Fixed This Season: 4,140 ft		Cumulative Length, Poor Streets Fixed
Street	Street Condition		Length	Comments		
St. Louis St (Susan to Bay)	Poor	41.4	1,426	Completed		11,726
Wallace St (Susan to Lee)	Poor	22.6	717	Completed		12,443
Truxton St (Lee to Bay)	Poor	43.8	744	Completed		13,187
Wilkinson St (Lee to Bay)	Poor	44.4	1,253	Completed	2.73	14,440
Lee Ave (Wilkinson to Cameron)	Fair3	54.0	2,342	Completed		
Palmetto St (Lee to Bath)	Poor	22.0	529	No Award Winter 08, built 2014		
E Avalon Drainage, Phase 3	(also listed Drainage Only below)			Complete; New Bern Street portion not awarded Winter 08		

2009-10 Project	(2007 rating)		4,126	Poor Streets Fixed This Season: 2,362 ft		Cumulative Length, Poor Streets Fixed
Street	Street Condition		Length	Comments		
W First St (Canal to Ketch)	Poor	50.6	566	w/MP Trail; Completed		15,006
W First St (Ketch to Landing)	Excellent	97.1	1,764	w/MP Trail; Completed		
W First St (Landing to south end)	Poor	46.1	1,796	w/MP Trail; Completed		16,802

2010-11 Project	(2007 rating)			Poor Streets Fixed This Season: 0 ft		Cumulative Length, Poor Streets Fixed
Phase 1A completed, stormwater only, on urgent basis			3,655			
Street	Street Condition		Length	Comments		
Ocean Acres Dr (158 to Copley W)	Fair3	59.0	2,800	Stormwater infiltration only		16,802
Harrington Lane (OA to Burns)	Good	89.0	250	Stormwater infiltration only		3.18 miles
Bell Avenue (OA to Burns)	Fair1	71.0	250	Stormwater infiltration only		
Gunas Dr (portion n of OA)	Fair1	75.0	135	Stormwater infiltration only		
Burns Dr (short portions)	Fair3	59.0	220	Stormwater infiltration only		

Fall FY 2011-2012 Project				Poor Streets Fixed This Season: 950 ft		Cumulative Length, Poor Streets Fixed
SW AREA (Ocean Acres) Stormwater, Phase 2	Street Condition		Length	Comments		
Ocean Acres Drive	Fair3	59.0	3,050	1.5" Overlay only		
Ocean Acres Drive	Poor	49.0	800	2" Overlay only		17,602
Burns Drive	Fair3	60.4	900	stormwater only		
Harrington Ave (Burns-Gunas)	Fair2	67.0	250	stormwater only		
Gunas Drive	Fair1	75.0	700	stormwater only		
Copley Drive	Fair1	77.0	400	stormwater only		
Jones Court	Poor	43.0	150	2" Overlay only		17,752
Adjust WM and remove 9 "jumpers"			6,250			3.36 miles

Spring FY 2011-12 Project	Condition		Length	Remarks		Cumulative Length, Poor Streets Fixed
				Poor Streets Fixed This Season: 1,252 ft		
Pirates Loop	Poor	47.0	709	full reconstruction; grade change		18,461
Coral Drive	Poor	48.4	302	full reconstruction		18,763
Harpoon Drive	Poor	48.4	241	overlay		19,004
			1,252			3.6 miles

Fall FY 2012-13 Project	Condition		Length	Remarks		Cumulative Length, Poor Streets Fixed
Parkwood Area (road reconstruction & drainage)				Poor Streets Fixed This Season: 1,579 ft		
Parkwood Dr	Poor	50.4	1,352	full reconstruction		20,356
Maple Ct	Fair 2	70.0	223	overlay		
Myrtle Ct	Poor	48.4	227	overlay		20,583
Elm Ct	Fair 3	52.4	245	overlay		3.9 miles
Telegraph Ct	Fair 3	52.4	400	overlay		
			4,951			

Spring FY 2012-13 Projects	Condition		Length	Remarks		Cumulative Length, Poor Streets Fixed
Bay Drive Multi-Use Path, Phase 2				Poor Streets Fixed This Season: 0 ft		
Bay Drive (Avalon to Wilkinson)	Good	86.2	2,555	full reconst., first 2 blocks		
Bay Drive (Wilkinson to Nixonton)	Fair 2	41.7	415	overlay		20,583
						3.9 miles
Raymond Ave (Arch to Town Line)	Fair 3	54.0	600			
			3,570			

KILL DEVIL HILLS -- Street and Drainage Improvements Recommendations

10/23/20

Previous Years' Projects (continued from previous page)

FY 2013-14 Project: NW Area 2	Condition		Length	Remarks	Cumulative Length, Poor Streets Fixed
Nixonton Street	Poor	42.0	1,039		
Bath Street	Poor	40.4	948		
Mary Hill Court	Poor	46.0	367		26,666
Columbia Avenue	Poor	37.4	777		5.05 miles
Jean Court	Poor	46.0	374		
Shiloh Street	Poor	42.0	1,159		
Truxton Street	Poor	50.0	890		
Wilkinson St (Columbia to 158)	Fair1	73.0	725		
Palmetto St (Lee to Bath)(Alternate?)	Poor	22.0	529		
			6,808	6,083 ft poor	

FY 2014-15 Project: N KHShores	Condition		Length	Remarks	Cumulative Length, Poor Streets Fixed
Memorial Blvd. (Wright-Woodmere)	Poor	29.2	1,965		
Memorial Blvd. (48" pipe replacing ex. culverts)			*1,080*	1,080' is part of 1,965'	
Aviation Avenue	Excellent	95.6	550		28,631
Pinehurst Avenue	Fair1	73.6	550		5.42 miles
Sutton Avenue	Good	81.4	550		
Carlow Avenue	Good	90.8	550		
Raleigh Avenue	Fair2	68.4	945	158 to NC12	
Baker Avenue	Excellent	95.6	550		
Ferris Avenue	Fair1	71.2	550		
			2,910	1,965 ft poor	

FY 2015-16: Northwest Area, Phase 3, Wrightsville, Memorial, Sioux Drainage and E & W Eighth	Condition		Length	Remarks	Cumulative Length, Poor Streets Fixed
Memorial Blvd. (Baum - halfway to Corrigan)	Poor	37.4	200	bid Sep 14; not awarded	
Wrightsville Blvd (Eighth to north end)	Poor	38.6	738	bid Sep 14; not awarded	32,596
Cameron Street	Poor	45.4	1,865		6.17 miles
Susan Drive	Poor	48.4	1,160		
E Eighth Street	Fair3	54.6	1,025	Nags Head 50% share: $0	
W Eighth St	Fair2	67.0	1,417	Nags Head 50% share: $100	
			6,405	3,965 ft poor	

FY 2016-17: Clark/Blue Jay St, Mustian St, Carlton Ave, Cooke Pl, Anchor Ct, Schooner C	Condition		Length	Remarks		Cumulative Length, Poor Streets Fixed
W Clark Street	Poor	48.0	1,396		begin Dec 16, complete Apr 17	
Blue Jay Street					begin Dec 16, complete Apr 17	36,561
Mustian Street	Poor	43.8	1,625		begin Dec 16, complete Apr 17	6.92 miles
W Carlton Ave	Poor	43.8	401			
Cooke Place	Poor	42.0	262		begin Dec 16, complete Apr 17	
Anchor Court	Poor	44.4	79		begin Dec 16, complete Apr 17	
Schooner Court	Fair2	56.4	200		begin Dec 16, complete Apr 17	
			3,963	3,965 ft poor		

FY 2017-18: Bay Drive Multi-Use Path, Phases 3 & 4	Condition		Length	Remarks	Cumulative Length, Poor Streets Fixed
Canal Dr, W First to Indian	Good	81.0	1,325		36,561
Bay, Indian to Avalon	Fair3	58.2	4,275		6.92 miles
			5,600	0 ft poor	

FY 2018-19: Whispering Pines	Condition	Ratinc	Length	Remarks	Cumulative Length, Poor Streets Fixed
Pine Gove Trail	Poor	46.3	2,170		42,721
Quail Lane	Poor	42.0	3,160		8.09 miles
Goldie Street	Fair3	56.4	150		
Harrington Lane (Burns to Pine Grove)	Poor	38.3	510		
Shay Street (Quail to Dean)	Poor	41.0	320		
Pine Cone Court	Fair3	54.0	180		
Pine Needle Court	Poor	42.3	180		
Heather Lane	Poor	46.0	320		
			6,990		
			6,160	1.17 miles Poor	

FY 2019-20: Hayman / Town Hall / Sixth	Condition	Rating	Length	Remarks	Cumulative Length, Poor Streets Fixed
Hayman Blvd & Plymouth Ave					48,531
Hayman Cir W to Bay; drainage; overlay	Poor	43.0	3,260		9.19 miles
Plymouth Ave, overlay	Poor	39.4	180		
Sixth Avenue &Town Hall Drive			2,370		
Town Hall Dr, overlay; drain	Poor	45.4	1,030		
Sixth Av (Airstrip to Baum), overlay & drain	Poor	46.6	1,340	overlay fabric	
			5,810		
			5,810	1.10 miles Poor	

FY 2020-21: Fall and Spring Bid Packages	Condition	Rating	Length	Remarks	Cumulative Length, Poor Streets Fixed
First Flight Village 3 / Landings 3					55,561
Cedar Dr, Captains La&Cir, Teakwood Ln	F3 - Poor	48.0	3,460		10.52 miles
Helga, Briggs, 4th, Martin, Dean			3,570		
Briggs St	Poor	47.8	1,030		
East Helga St	Poor	53	1,340	**narrow width after water project**	
East Fourth St	Fair1	74	200	bad drainage @ intersection	
East Martin St	Poor	50.1	900	22 w of Memorial	
East Dean St	Poor	50.0	300	0.06 miles Poor	
			7,030	1.33 miles Poor	

KILL DEVIL HILLS -- Street and Drainage Improvements Recommendations

10/23/20

Drainage Only Areas Completed

(per Albemarle & Associates 2005 Multiyear Drainage Plan)

Street or Area	Nature of Problem	Comments
06-07, East Avalon, Phase 1	Residential property Flooding	Avalon Street ONLY, not whole project; Completed Fall 04
07-08, Cardinal St	Residential property Flooding	Completed Spring 06
07-08, Creek St	Residential property Flooding	Completed Spring 06
07-08, Cedar Dr	Residential property Flooding	Completed Spring 06
06-07, East Avalon, Phase 2	Residential property Flooding	Completed Winter 07-08
Second St / Princess Anne Dr	Residential property Flooding	Completed Winter 07-08
Martin St / Blue Jay St	Commercial property flooding	Completed Winter 07-08
Baum St / Memorial Ave	Failing CMP, roadway damage	Completed Winter 07-08
East Fresh Pond Dr	Residential property Flooding	Completed Winter 07-08
East Holly St	Open ditch; safety issues	Completed Winter 07-08
08-09, East Avalon, Phase 3	Residential property Flooding	Completed Winter 08-09, except New Bern St
10-11, Southwest Area, Phase 1A	Residential property Flooding	Completed Summer 10
10-11, Southwest Area, Phase 2	Residential property Flooding	Completed Fall 11
14-15. NKHS, Memorial Ditch Phase 1	Failing CMP; develop backbone	Completed Spring 15
15-16, Sioux Street Drainage	Residential property Flooding	Completed Winter 15-16; owners provided easements
18-19, Quail La / Shay / Dean St	Residential property Flooding	Completed w/Whispering Pines Project, 2019

07-08, denotes Plan Year (FY) per Albemarle & Assoc. 2005 Multiyear Drainage Plan; ND = Not Determined

Drainage Only Areas Remaining

(per Albemarle & Associates 2005 Multiyear Drainage Plan)

Street or Area	Nature of Problem		Comments
Memorial Ave Ditch, Phases 2 & 3	Flooding; culvert failure		Continue 2-mile Master Plan; ocean outfall reliever. **Ph. 1 done 14-15.**
Third St		1200	Complete E portion with Street work.

07-08, denotes Plan Year (FY) per Albemarle & Assoc. 2005 Multiyear Drainage Plan; ND = Not Determined

POOR Streets Remaining

(after completion of 2019/20 projects; 2017 rating, **bold** dropped to **Poor** in 2017)

In "Poor Streets Remaining," streets highlighted with the following colors of shading are recommended on the first page for the following Fiscal Year:

FY 2022-2023 & beyond
FY 2021-2022

			Type (C ollector or L ocal A ccess)
RANDOM ST (Concrete)	Poor	512	LA
W. SPORTSMAN DR	Poor	2,997	LA
DOCK ST (Concrete)	Poor	549	LA
SEMINOLE ST (W Third to Indian)	**Poor**	930	LA
W. THIRD ST (US 158 to Creek)	Poor	1,194	LA
WRIGHTSVILLE BLVD (Goddard to Carolyn)	**Poor**	5,340	LA
MEMORIAL BLVD (1228 S to Martin)	**Poor**	1,540	C
BURNS DR	**Poor**	3,660	LA
POND ST	**Poor**	152	LA
Poor (2017) Streets After **20-21 Project**	**3.20 miles**	16,874 ft	

Director of
Planning and Inspections
MEREDITH GUNS

Building Inspector
MARTY SHAW
CHARLES THUMAN

Code Enforcement Officer
JORDAN BLYTHE

THE TOWN OF KILL DEVIL HILLS
NORTH CAROLINA

Assistant Director of
Planning and Inspections
CAMERON RAY

Senior Planner
RYAN LANG

Zoning Administrator
DONNA ELLIOTT

PLANNING DEPARTMENT

October 26, 2020

Memorandum

To: Street Improvement/Special Project Subcommittee

From: Cameron Ray, Assistant Planning Director

Subject: NC-12 Pedestrian Crosswalk Lighting

During the recent Board of Commissioners retreat, the board discussed the need for lighting at pedestrian crosswalks along NC-12. They identified this as a future want/need for Kill Devil Hills. The KDH Pedestrian Plan also identifies the installation of lighting at crosswalks along NC-12 as a recommended short term project. Attached to this memorandum is a product specifications sheet for pedestrian crosswalk lighting including a light pole and solar light fixture for potential lighting of existing NC-12 pedestrian crosswalks. In 2016, the Marriot Hotel agreed to install this lighting as an example for Kill Devil Hills future crosswalk lighting during the Site Plan Review process.

This memorandum is intended to start the discussion of potential locations in Town where the committee may see the lighting needed most. In the upcoming months, staff will conduct nighttime inspections to research which locations need lighting the most. Staff recommends committee members keep this in mind as well. Several factors shall be taken into consideration, including but not limited to; existing lighting at crosswalks, High volume areas, residential density and parking west of NC-12. Staff recommends the Committee discuss the provided information and plan to place on the agenda for the next SISPC meeting to make a recommendation to the Board of Commissioners on priority locations.

GREENTEK ENERGY SYSTEMS

LED SOLAR LIGHTS

Apollo Series Solar LED Pathway And Street Light - 3000 Lumens - Remote Control

FEATURES

- Smart Remote Functionality - programmable lighting modes to satisfy most applications
- Adaptive Lighting System to achieve full night lighting if the weather changes, this is known as constant current output
- Variable Frequency Technology controls and adjusts the LED driver frequency to reach the max output of LED and Battery
- Temperature Control Systems to Protect the battery charging and discharging in high temperatures
- 10 hours for a full charge battery by standard sunlight. Once the battery is fully charged, it can support 3 nights of lighting.
- SC Seoul LED Chips - 160 lumens/w (40 LED Chips)

Note: The pole is not included.
This product does include the mounting hardware.

Lighting Mode

3 different lighting modes

1 Constant Brightness for allotted time
2 Dim lighting + motion sensor mode
3 Timer lighting mode where the light is programmable for a certain time limit

Preset Lighting Modes in More Detail:

M1 10% brightness + PIR (full brightness for 30 seconds) for 12 hours - once you click on this mode, it will stay in M1 until the setting is changed.

M2 Initial default setting mode: 0hrs of brightness + PIR (full brightness for 30 seconds) for 12 hours. This will stay in M2 until the setting is changed.

Lighting Mode Via Controller

a. You can choose different brightness for whole night 10%, 30%, 60%, 100%. (Not recommended since the 100% lighting mode of full brightness can use the entire battery in 1 night)
b. You can choose different brightnesses and time 1/2/3/4/6*/8* hours (ex. 30% for 4 hours) - once the selected mode is completed, it will automatically initiate M2 for the remainder of the night. This mode has a memory function, therefore it will keep same light every night until you change it to another mode.

*To access 6 and 8 hours, simply move the switch from OFF to ON next to the batteries on the back of the remote, under the protective cap. If switched to "ON", T1 = 2hrs, T2 = 4hrs, T3 = 6hrs, T4 = 8hrs.

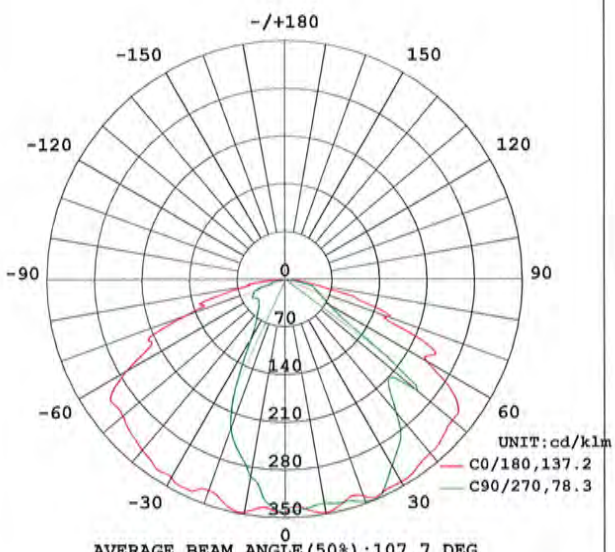
SKU	GT06ST	SOLAR CHARGING TIME	9 to 10 hours	WATERPROOF	IP 65
CERTIFICATION	CE, ROHS, FCC, BV, BSCI, ISO	COLOR	6500K	SIZE	32" x 9" x 6.45"
LUMENS	3000 Lumens | 40 LEDs	SOLAR PANEL	15W 18V	WARRANTY	1 Year
INSTALL HEIGHT	10-20ft	MATERIAL	Aluminum Alloy and Tempered Glass	LI-ION BATTERY	115.4WH, 14.8V

STREETLIGHT PHOTOMETRIC TEST REPORT

Test:U:0V I:0A P:0W PF:0 Freq:0Hz Lamp Flux:3210.39x1 lm		
NAME: LED	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Greentek Energy Systems	SUR.:	Shielding Angle:N/A

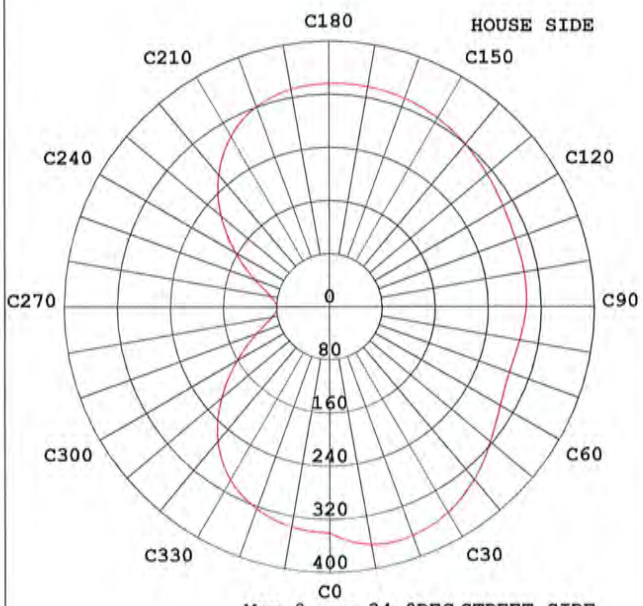
DATA OF LAMP		PHOTOMETRIC DATA			
MODEL	SSL-06R	Imax(cd/klm)	364.4	η street_up(%)	0.0
NOMINAL POWER(W)		LOR(%)	100.0	η street_down(%)	54.0
RATED VOLTAGE(V)		TOTAL FLUX(lm/klm)	1000.0	η house_up(%)	0.1
NOMINAL FLUX(lm)	3210.39	MAXIMUM @(C,γ)	23,34.0	η house_down(%)	46.0
LAMPS INSIDE	1	η up(%)	0.1	76 FLASHAREA(m2)	0.00100
TEST VOLTAGE(V)		η down(%)	99.9	SLI	16.980

INTENSITY DISTRIBUTION DIAGRAM
IN C PLANS



AVERAGE BEAM ANGLE(50%):107.7 DEG

MAX INTENSITY CONE SURFACE
DISTRIBUTION DIAGRAM



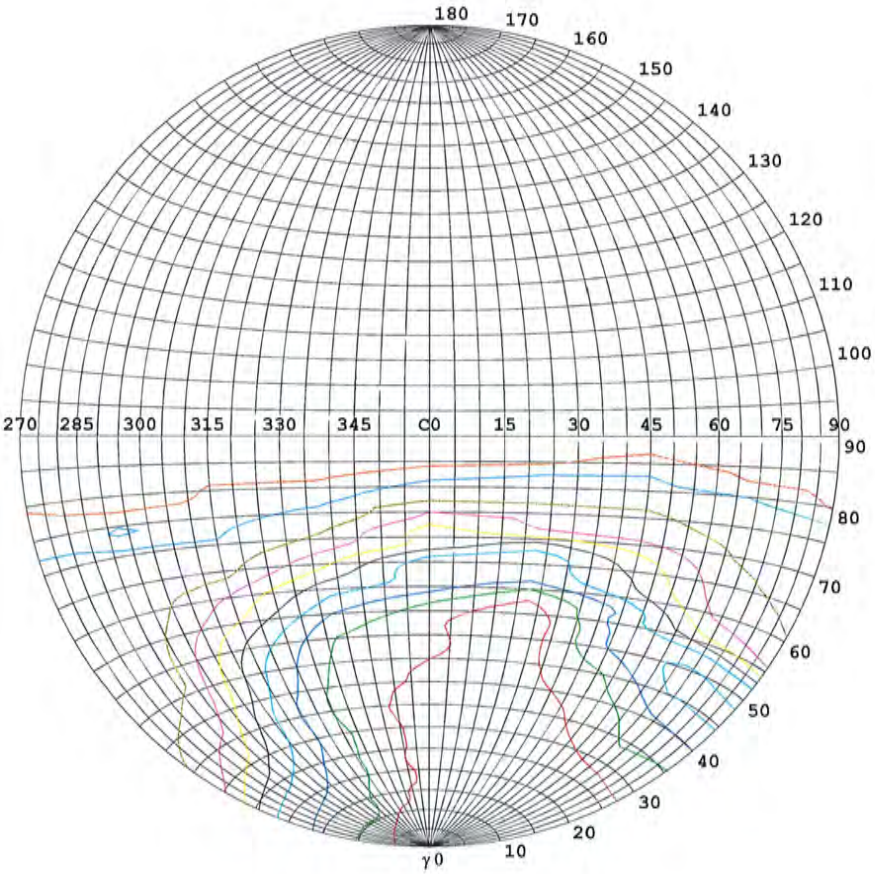
Max @ γ = 34.0DEG STREET SIDE

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:Kai
Test Date:2017-02-14

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.352
Humidity:65.7%
Test Distance:26.000m [K=1.4372]
Remarks:

STREETLIGHT ISOCANDELA DIAGRAM

Test:U:0V I:0A P:0W PF:0 Freq:0Hz Lamp Flux:3210.39x1 lm		
NAME: LED	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Greentek Energy Systems	SUR.:	Shielding Angle:N/A



Classification:

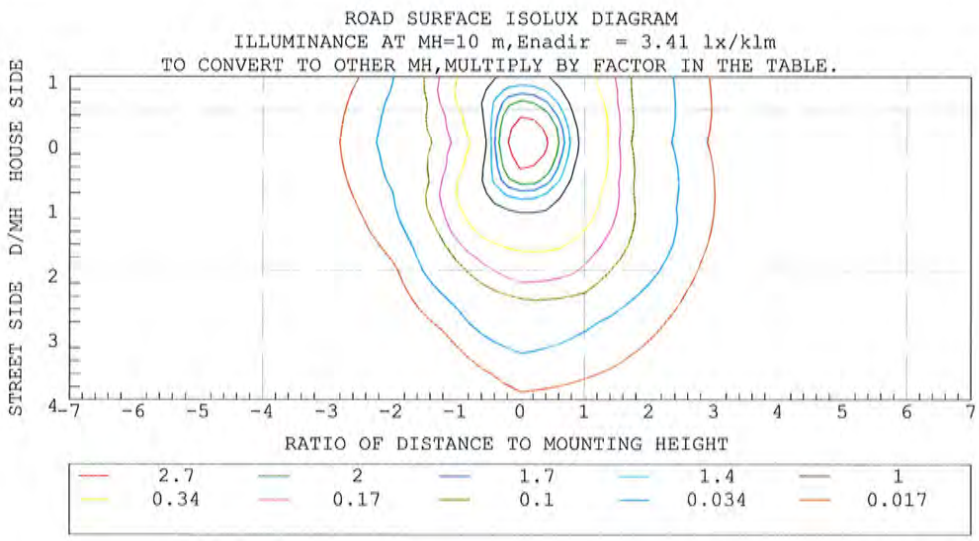
IES:Type III - Very Short
CIE:Average - Short
IES:Cut-off
CIE:Semi-cut-off
Max.At80:54.21cd/klm
Max.At90:10.77cd/klm
Max.80-90:55.61cd/klm

ISOCANDELA DIAGRAM	
UNIT	cd/klm
Imax=100%	364
90%	328
80%	292
70%	255
60%	219
50%	182
40%	146
30%	109
20%	73
10%	36
5%	18

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:Kai
Test Date:2017-02-14

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.352
Humidity:65.7%
Test Distance:26.000m [K=1.4372]
Remarks:

COEFFICIENT OF UTILIZATION CURVE AND ISOLUX DIAGRAM



HEIGHT	FACTOR
5 m	4.000
6 m	2.778
7 m	2.041
8 m	1.563
9 m	1.235
10 m	1.000
11 m	0.826
12 m	0.694
13 m	0.592
14 m	0.510
15 m	0.444
16 m	0.391

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:Kai
Test Date:2017-02-14

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.352
Humidity:65.7%
Test Distance:26.000m [K=1.4372]
Remarks:

ZONAL FLUX DIAGRAM

Test:U:0V I:0A P:0W PF:0 Freq:0Hz Lamp Flux:3210.39x1 lm		
NAME: LED	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Greentek Energy Systems	SUR.:	Shielding Angle:N/A

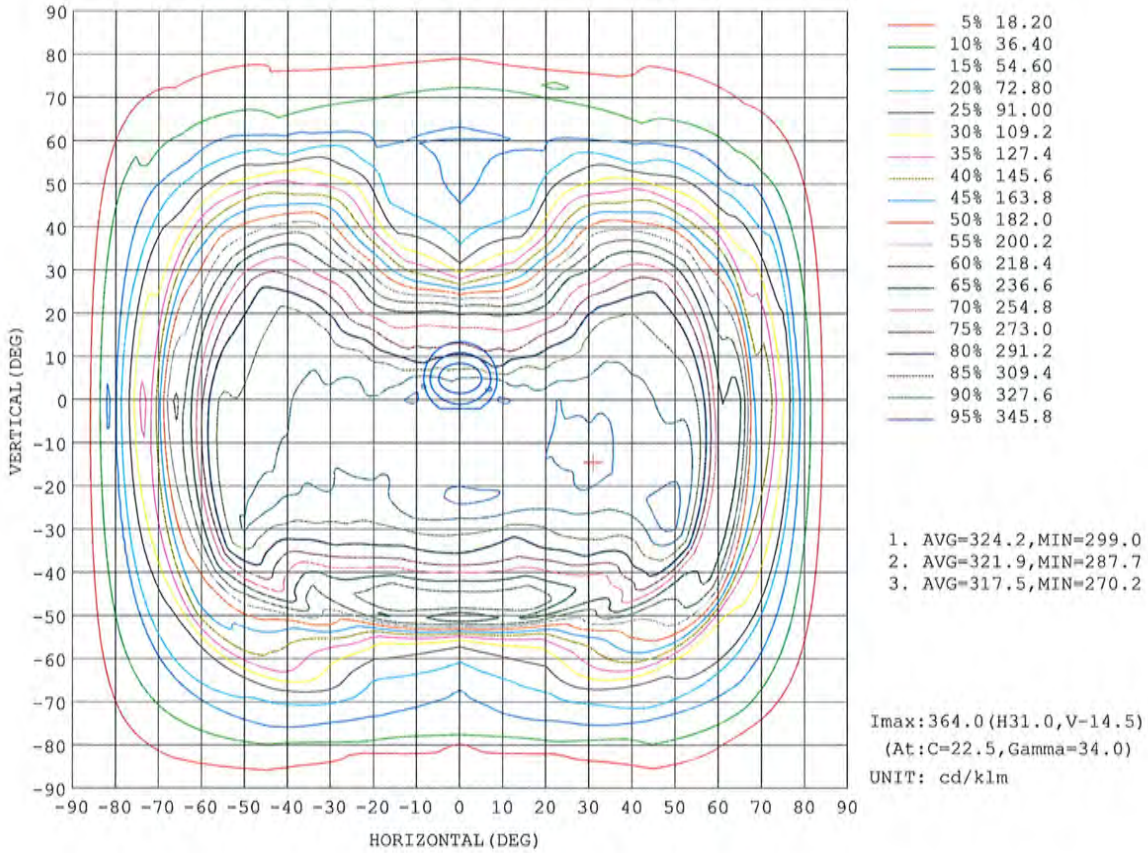
γ	C0	C45	C90	C135	C180	C225	C270	C315	γ	Φ zone	Φ total	%lum,lamp
10	347.2	343.2	333.4	341.0	346.6	307.4	294.6	297.2	0- 10	31.73	31.73	3.17,3.17
20	338.1	340.1	345.9	334.2	329.4	260.3	235.1	260.9	10- 20	89.19	120.9	12.1,12.1
30	342.8	337.6	314.1	322.4	335.0	239.1	104.5	239.4	20- 30	137.0	257.9	25.8,25.8
40	332.6	315.7	254.6	302.9	326.6	228.7	63.89	225.2	30- 40	168.7	426.6	42.7,42.7
50	321.8	255.4	252.8	233.8	311.4	202.6	50.45	192.0	40- 50	184.6	611.1	61.1,61.1
60	241.0	211.5	75.50	191.1	270.8	124.5	53.97	113.7	50- 60	180.7	791.8	79.2,79.2
70	160.3	122.6	50.38	129.5	156.9	46.87	46.78	40.31	60- 70	126.6	918.5	91.8,91.8
80	44.66	43.76	16.79	53.02	53.00	18.16	15.59	18.81	70- 80	64.11	982.6	98.3,98.3
90	3.397	5.522	0.0089	8.430	7.819	2.103	0	0.8582	80- 90	16.61	999.2	99.9,99.9
100	0	0	0	0	0.1148	0	0	0	90-100	0.5457	999.7	100,100
110	0	0	0	0	0.1723	0.1740	0	0.1721	100-110	0.0430	999.8	100,100
120	0	0	0	0	0.1723	0.1740	0	0.1721	110-120	0.0465	999.8	100,100
130	0	0	0	0	0.1723	0.1740	0	0.1721	120-130	0.0498	999.9	100,100
140	0	0	0	0	0.1723	0.1740	0	0.1721	130-140	0.0446	999.9	100,100
150	0	0	0	0	0.1723	0.1160	0.0574	0.1147	140-150	0.0337	1000.0	100,100
160	0.1148	0	0	0	0.1723	0.1160	0.0574	0.1147	150-160	0.0250	1000.0	100,100
170	0.1148	0	0	0	0.1148	0.1150	0.0574	0.1147	160-170	0.0161	1000.0	100,100
180	0.1148	0.1160	0	0.0574	0.0574	0.0580	0	0.0574	170-180	0.0054	1000.0	100,100
DEG	LUMINOUS INTENSITY:cd/klm									UNIT:lm/klm		

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:Kai
Test Date:2017-02-14

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.352
Humidity:65.7%
Test Distance:26.000m [K=1.4372]
Remarks:

ISOCANDELA DIAGRAM

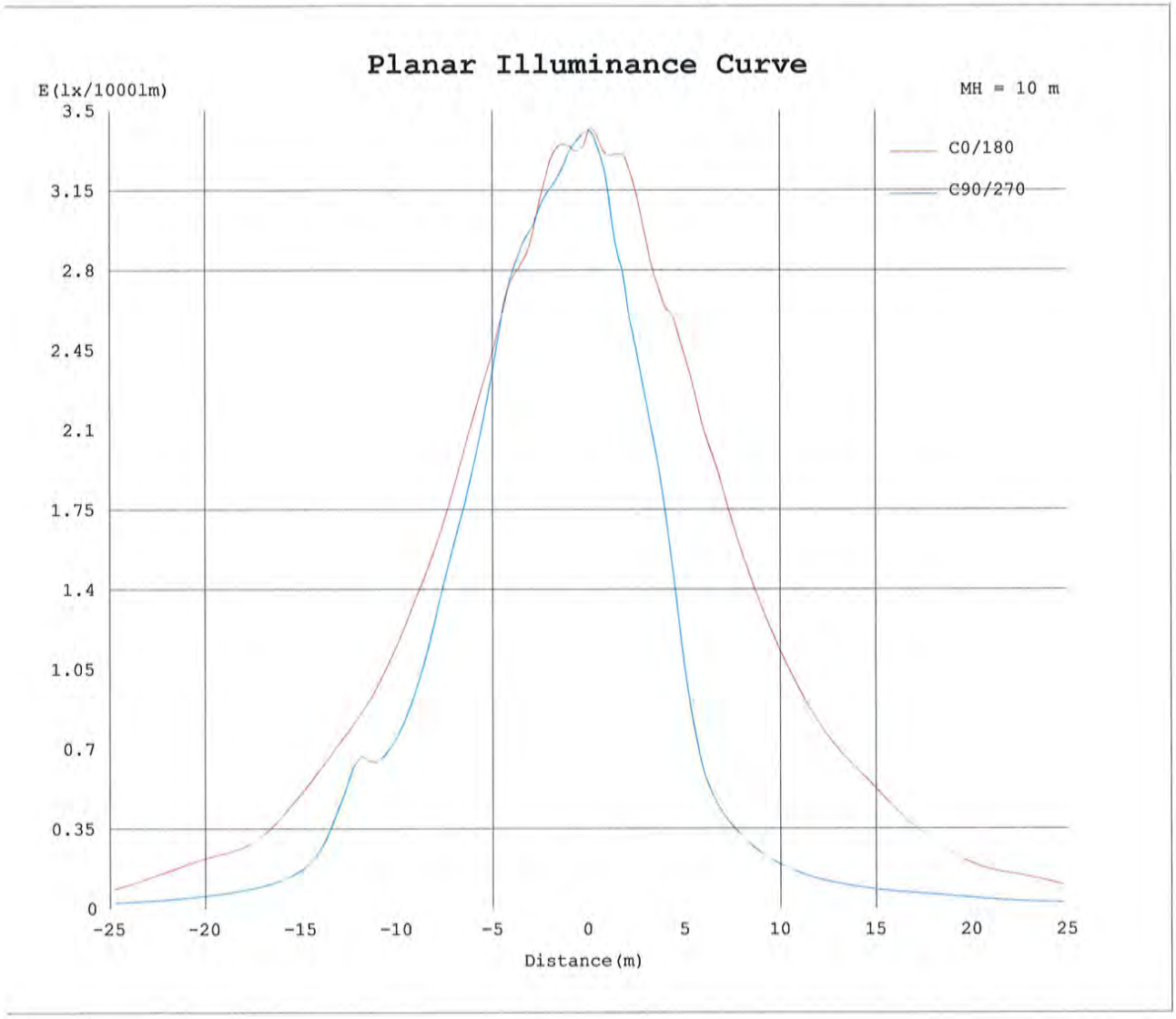
Test:U:0V I:0A P:0W PF:0 Freq:0Hz Lamp Flux:3210.39x1 lm		
NAME: LED	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Greentek Energy Systems	SUR.:	Shielding Angle:N/A



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:Kai
Test Date:2017-02-14

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.352
Humidity:65.7%
Test Distance:26.000m [K=1.4372]
Remarks:

Planar Illuminance Curve



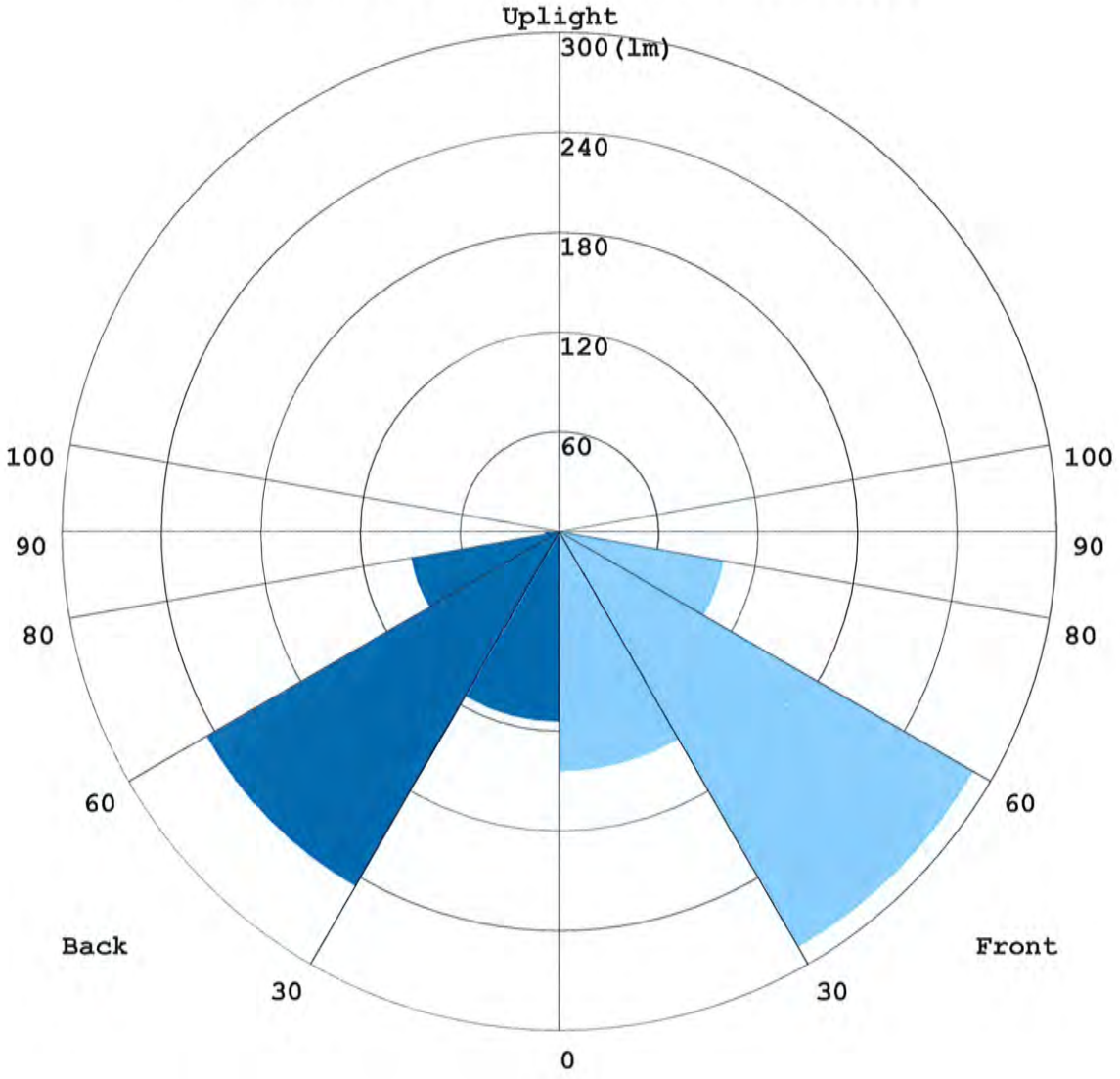
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:Kai
Test Date:2017-02-14

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.352
Humidity:65.7%
Test Distance:26.000m [K=1.4372]
Remarks:

LCS REPORT

Test:U:0V I:0A P:0W PF:0 Freq:0Hz Lamp Flux:3210.39x1 lm		
NAME: LED	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Greentek Energy Systems	SUR.:	Shielding Angle:N/A

LUMINAIRE CLASSIFICATION SYSTEM(LCS) GRAPH



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:Kai
Test Date:2017-02-14

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.352
Humidity:65.7%
Test Distance:26.000m [K=1.4372]
Remarks:

BUG REPORT

Test:U:0V I:0A P:0W PF:0 Freq:0Hz Lamp Flux:3210.39x1 lm		
NAME: LED	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Greentek Energy Systems	SUR.:	Shielding Angle:N/A

IESNA Luminaire Flux Distribution Table:

Zone	Lumens	Luminaire %
FL - Front-Low(0-30)	143.73	14.4
FM - Front-Medium(30-60)	287.98	28.8
FH - Front-High(60-80)	100.2	10.0
FVH - Front-Very High(80-90)	7.7341	0.8
Total Forward Light	539.89	54.0
BL - Back-Low(0-30)	114.17	11.4
BM - Back-Medium(30-60)	245.95	24.6
BH - Back-High(60-80)	90.55	9.1
BVH - Back-Very High(80-90)	8.8765	0.9
Total Back Light	460.11	46.0
UL - Uplight-Low(90-100)	0.54566	0.1
UH - Uplight-High(100-180)	0.26428	0.0
Total Up Light	0.80994	0.1

BUG(Back,Up,Glare) Rating	B1-U1-G0

Zone	Downward Lumens	Upward Lumens	Total Lumens
House Side	459.55	0.56269	460.11
Street Side	539.64	0.24725	539.89

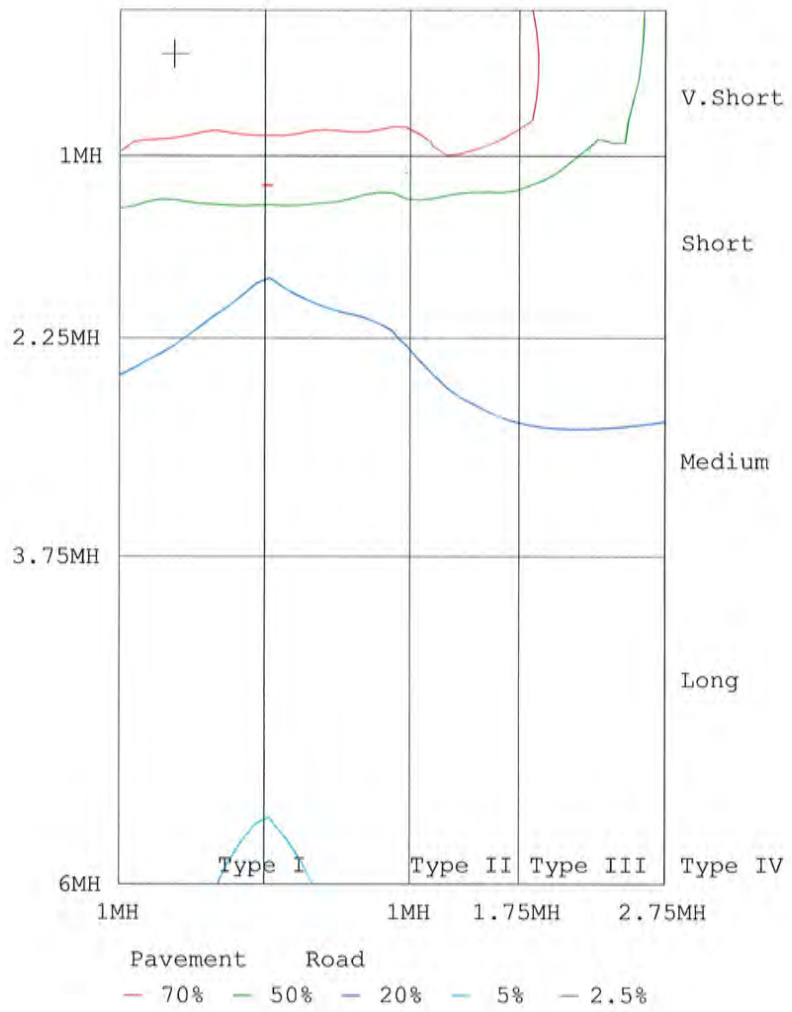
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:Kai
Test Date:2017-02-14

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.352
Humidity:65.7%
Test Distance:26.000m [K=1.4372]
Remarks:

ROAD ISOCANDELA REPORT

Test:U:0V I:0A P:0W PF:0 Freq:0Hz Lamp Flux:3210.39x1 lm		
NAME: LED	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Greentek Energy Systems	SUR.:	Shielding Angle:N/A

ROAD SURFACE ISOCANDELA DIAGRAM



C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:Kai
Test Date:2017-02-14

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.352
Humidity:65.7%
Test Distance:26.000m [K=1.4372]
Remarks:

LUMINOUS DISTRIBUTION INTENSITY DATA

Test:U:0V I:0A P:0W PF:0 Freq:0Hz Lamp Flux:3210.39x1 lm		
NAME: LED	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Greentek Energy Systems	SUR.:	Shielding Angle:N/A

Table--1 UNIT: cd/klm

γ (DEG) \ C (DEG)	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5
0	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341	341
5	338	332	334	336	337	336	337	334	336	337	333	326	328	330	335	342
10	347	340	343	344	333	335	341	334	347	345	307	296	295	296	297	336
15	338	340	339	345	338	340	340	335	341	316	279	264	264	263	278	320
20	338	342	340	342	346	344	334	338	329	314	260	250	235	244	261	306
25	343	349	339	343	341	341	325	341	340	314	252	210	174	202	253	306
30	343	350	338	315	314	324	322	333	335	309	239	160	105	158	239	306
35	338	364	326	285	294	296	313	337	335	318	238	122	76.0	121	239	320
40	333	344	316	263	255	264	303	330	327	321	229	94.7	63.9	90.6	225	318
45	328	340	298	220	215	216	280	331	320	313	214	77.4	55.1	75.6	213	307
50	322	351	255	205	253	204	234	333	311	299	203	71.1	50.5	70.0	192	293
55	309	355	240	174	121	170	217	329	312	266	166	68.1	49.7	64.3	148	257
60	241	292	211	107	75.5	101	191	305	271	215	124	55.2	54.0	54.3	114	205
65	239	242	175	86.9	59.8	78.5	146	220	216	166	75.3	47.7	50.8	44.3	62.0	140
70	160	162	123	71.6	50.4	65.3	129	173	157	103	46.9	40.5	46.8	40.8	40.3	81.5
75	110	103	80.2	57.2	42.4	53.6	77.4	82.8	122	55.7	30.3	36.0	20.5	36.1	28.7	42.7
80	44.7	53.6	43.8	36.3	16.8	36.3	53.0	54.2	53.0	26.8	18.2	13.1	15.6	13.2	18.8	22.3
85	13.7	16.1	24.6	11.0	3.99	11.2	28.7	31.2	23.0	11.2	8.46	7.51	0.00	7.59	4.41	5.84
90	3.40	4.90	5.52	0.88	0.01	1.28	8.43	10.8	7.82	3.54	2.10	1.01	0.00	0.11	0.86	1.81
95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06
100	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.06	0.00	0.00	0.00	0.00	0.00	0.12
105	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.12	0.17	0.00	0.00	0.06	0.17	0.12
110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.12	0.17	0.00	0.00	0.00	0.17	0.12
115	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.12	0.17	0.00	0.00	0.00	0.17	0.12
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.12	0.17	0.00	0.00	0.00	0.17	0.12
125	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.12	0.17	0.06	0.00	0.12	0.17	0.12
130	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.12	0.17	0.11	0.00	0.06	0.17	0.12
135	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.12	0.17	0.11	0.00	0.06	0.17	0.12
140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.12	0.17	0.11	0.00	0.06	0.17	0.12
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.12	0.12	0.11	0.06	0.00	0.11	0.12
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.12	0.12	0.11	0.06	0.00	0.11	0.06
155	0.06	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.12	0.12	0.11	0.06	0.00	0.11	0.06
160	0.11	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.12	0.12	0.11	0.06	0.00	0.11	0.06
165	0.11	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.12	0.12	0.11	0.06	0.00	0.11	0.06
170	0.11	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.12	0.12	0.11	0.06	0.00	0.11	0.06
175	0.11	0.06	0.11	0.00	0.00	0.00	0.06	0.00	0.06	0.12	0.06	0.11	0.00	0.00	0.11	0.06
180	0.11	0.06	0.12	0.00	0.00	0.12	0.06	0.12	0.06	0.12	0.06	0.11	0.00	0.00	0.06	0.06

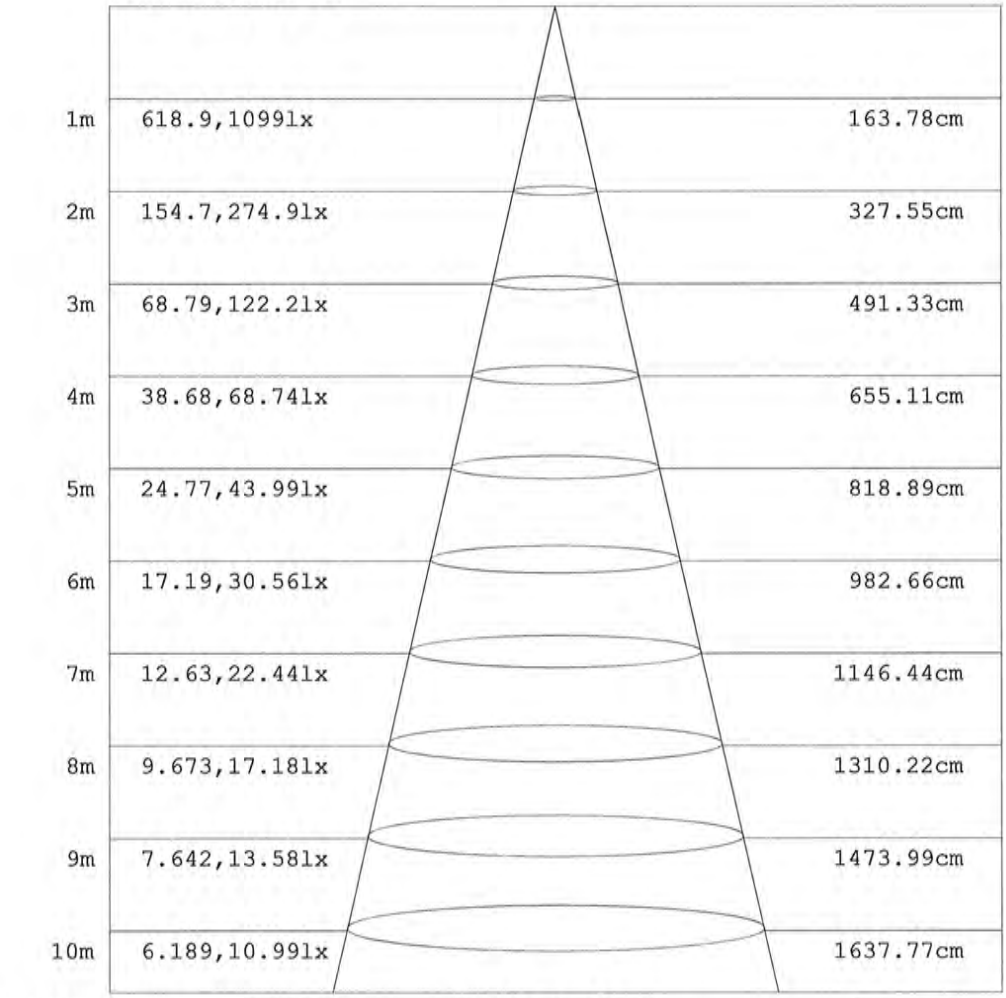
C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:Kai
Test Date:2017-02-14

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.352
Humidity:65.7%
Test Distance:26.000m [K=1.4372]
Remarks:

AAI Figure

Test:U:0V I:0A P:0W PF:0 Freq:0Hz Lamp Flux:3210.39x1 lm		
NAME: LED	TYPE:LED	WEIGHT:N/A
SPEC.:N/A	DIM.:	SERIAL No.:N/A
MFR.: Greentek Energy Systems	SUR.:	Shielding Angle:N/A

Flux out:1369 lm



Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

C Range: 0 - 360DEG
C Interval: 22.5DEG
Test Speed: HIGH
Temperature:24.5DEG
Operators:Kai
Test Date:2017-02-14

γ Range: 0 - 180DEG
γ Interval: 1.0DEG
Test System:EVERFINE GO-R5000_V2 SYSTEM V2.0.352
Humidity:65.7%
Test Distance:26.000m [K=1.4372]
Remarks:

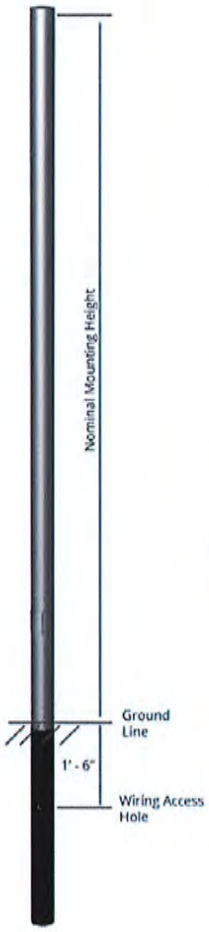
Project Name _____ Pole Type _____

Catalog # _____

Round Straight Aluminum Light Poles, Direct Burial

Product Overview

- **Pole Shaft** - The pole shaft is extruded from seamless 6063-T6 aluminum.
- **Pole Top** - A removable top cap is provided for poles receiving drilling patterns for side-mount luminaire arm assemblies. Other pole top options include Tenon Top, Top Cap Only or Open Top which is typical when the pole top diameter matches the necessary slip-fit dimensions.
- **Hand Hole** - An above grade 2" x 4" oval hand hole and grounding provision are provided (dimensions are nominal). Cover and cover attachment hardware also included.
- **Embedment** - The embedded section of the pole is coated with protective undercoating and includes a 0.5" wire way located approximately 18" below grade.
- **Hardware** - All structural fasteners are galvanized high strength carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.
- **Finish** - Finishes include anodized or painted. Please consult factory for special finishing colors and fixture matching options. When storing light poles outside, remove all protective wrapping immediately upon delivery to prevent finish damage.
- **Design Criteria** - Standard EPA (Effective Projected Area) and weight values are based on AASHTO Criteria (with 3 second gust factor) for side and top mounted fixtures only. Satisfactory performance of light poles is dependent upon the pole being properly attached to a supporting foundation of adequate design.



Tenon Top

Pole Cap

Cross Section

Handhole

NAFCO

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Fond du Lac, WI 54935

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Rev. V05012018

This specification brochure is intended to serve as a general guide. Our products are continually being engineered and improved, and specifications are subject to change without notice.

EPA Load Information

BASE MODEL	80 MPH w/3sec Gust		90 MPH w/3sec Gust		100 MPH w/3sec Gust		110 MPH w/3sec Gust		120 MPH w/3sec Gust	
	MAX EPA (SQ FT)	MAX WEIGHT (LBS)	MAX EPA (SQ FT)	MAX WEIGHT (LBS)	MAX EPA (SQ FT)	MAX WEIGHT (LBS)	MAX EPA (SQ FT)	MAX WEIGHT (LBS)	MAX EPA (SQ FT)	MAX WEIGHT (LBS)
NP-RSAD-08-4040-C	14	100	11.1	100	8.5	100	7.6	100	6.2	100
NP-RSAD-10-4040-C	10.7	100	8.1	100	6.1	100	5.3	100	4.2	100
NP-RSAD-12-4040-C	8.1	100	6	100	4.4	100	3.7	100	2.8	100
NP-RSAD-14-4040-C	6.2	100	4.3	100	3	100	2.5	100	1.6	100
NP-RSAD-15-4040-C	5.3	100	3.6	100	2.4	100	1.8	100	1.1	100
NP-RSAD-15-4040-D	9.5	100	6.9	100	5.1	100	4.3	100	3.1	100
NP-RSAD-15-5050-D	17	125	12.8	125	9.7	125	8.4	125	6.5	125
NP-RSAD-16-4040-C	4.6	100	3	100	1.9	100	1.4	100	0.7	100
NP-RSAD-16-4040-D	8.4	100	6	100	4.3	100	3.6	100	2.6	100
NP-RSAD-16-5050-D	15.6	125	11.5	125	8.7	125	7.4	125	5.6	125
NP-RSAD-18-4040-D	6.5	100	4.4	100	3	100	2.4	100	1.4	100
NP-RSAD-18-4040-E	9.3	100	6.9	100	5	100	4.1	100	2.9	100
NP-RSAD-18-5050-D	12.5	125	9	125	6.6	125	5.5	125	3.9	125
NP-RSAD-20-4040-D	4.8	100	3.1	100	1.8	100	1.2	100	0.5	100
NP-RSAD-20-4040-E	7.5	100	5.1	100	3.4	100	2.8	100	1.7	100
NP-RSAD-20-5050-D	10	125	7	125	4.8	125	3.8	125	2.5	125
NP-RSAD-20-5050-E	14.5	125	10.5	125	7.6	125	6.4	125	4.6	125
NP-RSAD-20-6060-D	16	150	11.5	150	8.3	150	6.8	150	4.9	150
NP-RSAD-20-6060-E	22.8	150	16.8	150	12.5	150	10.7	150	8.2	150
NP-RSAD-22-6060-D	13.2	150	9	150	6.1	150	4.9	150	3.1	150
NP-RSAD-22-6060-E	19	150	13.8	150	10	150	8.4	150	6	150
NP-RSAD-24-6060-D	10.4	150	6.8	150	4.3	150	3.2	150	1.6	150
NP-RSAD-24-6060-E	15.8	150	11	150	7.7	150	6.3	150	4.2	150
NP-RSAD-25-6060-D	9.2	150	5.9	150	3.4	150	2.4	150	0.9	150
NP-RSAD-25-6060-E	14.4	150	10	150	6.7	150	5.3	150	3.4	150
NP-RSAD-26-6060-D	8.1	150	5	150	2.6	150	1.6	150	N/A	N/A
NP-RSAD-26-6060-E	13	150	8.8	150	5.8	150	4.5	150	2.6	150
NP-RSAD-28-6060-D	6.2	150	3.2	150	1.2	150	N/A	N/A	N/A	N/A
NP-RSAD-28-6060-E	10.5	150	6.8	150	4	150	2.8	150	1.1	150
NP-RSAD-30-6060-D +	4.7	150	2.1	150	N/A	N/A	N/A	N/A	N/A	N/A
NP-RSAD-30-6060-E +	9	150	5.4	150	2.8	150	1.7	150	N/A	N/A

1. The total combined EPA and weight of all fixtures, brackets and attachments mounting to a light pole cannot exceed the EPA and weight rating for a specified pole.
2. Standard EPA (Effective Projected Area) and weight values are based on Standard Commercial Criteria (with 3 second gust factor) for side and top mounted fixtures only.
3. Satisfactory performance of light poles is dependent upon the pole being properly attached to a supporting foundation of adequate design.

Note: Additional sizes and configurations are available upon request.

"+" Indicates a vibration dampener is standard

NAFCO

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Fond du Lac, WI 54935

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NAFCOmfg.com

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Designation & Dimensional Information

BASE MODEL	POLE DIMENSIONS							
	NOMINAL MOUNTING HEIGHT	EXPOSED HEIGHT	EMBEDMENT LENGTH	OVERALL SHAFT LENGTH	STRUCTURE WEIGHT (LBS)	TOP OD (IN)	BASE OD (IN)	WALL THK (IN)
NP-RSAD-08-4040-C	8'-0"	8'-0"	3'-0"	11'-0"	23	4	4	0.125
NP-RSAD-10-4040-C	10'-0"	10'-0"	3'-0"	13'-0"	27	4	4	0.125
NP-RSAD-12-4040-C	12'-0"	12'-0"	3'-0"	15'-0"	31	4	4	0.125
NP-RSAD-14-4040-C	14'-0"	14'-0"	3'-0"	17'-0"	34	4	4	0.125
NP-RSAD-15-4040-C	15'-0"	15'-0"	3'-0"	18'-0"	38	4	4	0.125
NP-RSAD-15-4040-D	15'-0"	15'-0"	3'-0"	18'-0"	53	4	4	0.188
NP-RSAD-15-5050-D	15'-0"	15'-0"	4'-0"	19'-0"	38	5	5	0.188
NP-RSAD-16-4040-C	16'-0"	16'-0"	3'-0"	19'-0"	55	4	4	0.125
NP-RSAD-16-4040-D	16'-0"	16'-0"	3'-0"	19'-0"	61	4	4	0.188
NP-RSAD-16-5050-D	16'-0"	16'-0"	4'-0"	20'-0"	69	5	5	0.188
NP-RSAD-18-4040-D	18'-0"	18'-0"	3'-0"	21'-0"	70	4	4	0.188
NP-RSAD-18-4040-E	18'-0"	18'-0"	3'-0"	21'-0"	74	4	4	0.250
NP-RSAD-18-5050-D	18'-0"	18'-0"	4'-0"	22'-0"	80	5	5	0.188
NP-RSAD-20-4040-D	20'-0"	20'-0"	4'-0"	24'-0"	87	4	4	0.188
NP-RSAD-20-4040-E	20'-0"	20'-0"	4'-0"	24'-0"	109	4	4	0.250
NP-RSAD-20-5050-D	20'-0"	20'-0"	4'-0"	24'-0"	143	5	5	0.188
NP-RSAD-20-5050-E	20'-0"	20'-0"	4'-0"	24'-0"	118	5	5	0.250
NP-RSAD-20-6060-D	20'-0"	20'-0"	5'-0"	25'-0"	154	6	6	0.188
NP-RSAD-20-6060-E	20'-0"	20'-0"	5'-0"	25'-0"	126	6	6	0.250
NP-RSAD-22-6060-D	22'-0"	22'-0"	5'-0"	27'-0"	165	6	6	0.188
NP-RSAD-22-6060-E	22'-0"	22'-0"	5'-0"	27'-0"	133	6	6	0.250
NP-RSAD-24-6060-D	24'-0"	24'-0"	5'-0"	29'-0"	79	6	6	0.188
NP-RSAD-24-6060-E	24'-0"	24'-0"	5'-0"	29'-0"	90	6	6	0.250
NP-RSAD-25-6060-D	25'-0"	25'-0"	5'-0"	30'-0"	114	6	6	0.188
NP-RSAD-25-6060-E	25'-0"	25'-0"	5'-0"	30'-0"	128	6	6	0.250
NP-RSAD-26-6060-D	26'-0"	26'-0"	5'-0"	31'-0"	167	6	6	0.188
NP-RSAD-26-6060-E	26'-0"	26'-0"	5'-0"	31'-0"	175	6	6	0.250
NP-RSAD-28-6060-D	28'-0"	28'-0"	5'-0"	33'-0"	142	6	6	0.188
NP-RSAD-28-6060-E	28'-0"	28'-0"	5'-0"	33'-0"	185	6	6	0.250
NP-RSAD-30-6060-D +	30'-0"	30'-0"	5'-0"	35'-0"	150	6	6	0.188
NP-RSAD-30-6060-E +	30'-0"	30'-0"	5'-0"	35'-0"	196	6	6	0.250

1. The total combined EPA and weight of all fixtures, brackets and attachments mounting to a light pole cannot exceed the EPA and weight rating for a specified pole.
2. Standard EPA (Effective Projected Area) and weight values are based on Standard Commercial Criteria (with 3 second gust factor) for side and top mounted fixtures only.
3. Satisfactory performance of light poles is dependent upon the pole being properly attached to a supporting foundation of adequate design.

Note: Additional sizes and configurations are available upon request.

"+" Indicates a vibration dampener is standard

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Ordering Information

Ex. NP-RSAD-10-4040-C-FP-DB-D1

Designation
NP-RSAD = Round Straight Burial

—

Above Grade Length*
8 to 30

—

Base OD*	Top OD*
40 = 4"	40 = 4"
50 = 5"	50 = 5"
60 = 6"	60 = 6"

—

Thickness*
C = 0.125"
D = 0.188"
E = 0.250"

—

Finish Type
AN = Anod.
FP = Finish Painted

—

Color	
DB	Dark Bronze
MB	Medium Bronze
LG	Light Gray
DG	Dark Green
HG	Hunter Green
SG	Slate Gray
SM	Silver Metallic
BK	Black
WH	White
SL	Silver
SC	Custom
NA	Natural Alum. Paint
SA	Satin Silver Anod.
BA	Bronze Anod.
BKA	Black Anod.

—

Fixture Mounting	
Drill Mounting (includes cap)	
D1	Single
D2	2@180 deg.
D3	3@120 deg.
D4	4@90 deg.
D5	2@90 deg.
D6	3@90 deg.
Tenon Mounting	
P1	4" OD x 5" Long Tenon
P2	2.38" OD x 4" Long Tenon
P3	3.50" OD x 6" Long Tenon
P4	4" OD x 6" Long Tenon
P5	2.88" OD x 4" Long Tenon
P6	2.88" OD x 5" Long Tenon
P7	2.38" OD x 5" Long Tenon
PQ	2.38" OD x 12" Long Tenon
PD	3" OD x 3" Long Tenon
P9	Custom Size Tenon
Other Options	
PC	Cap Only, No Side Drilling
PL	Open Top, No Cap or Side Drilling

* See previous pages for base model configurations.
Consult factory or your sales rep for deviations from base models. Additional sizes and configurations available upon request.

Options & Accessories

Description	
SPL	Special Cut Length (Please Specify)
VDA	Internal Vibration Dampener, Factory Installed
VDF	Internal Vibration Dampener, Field Installable
PXDX	Side Drill + Tenon w/ Additional Hand Hole (Specify Tenon OD & Length)

Description	
HHU	Additional Unreinforced Hand Hole Opening w/ Cover Assembly
HHR	Additional Reinforced Hand Hole Opening w/ Cover Assembly
FSTR	Festoon Provision, Electrical by Others (Specify Pole Height & Orientation)
CPL	NPT Pipe Coupling (Specify Pole Height, Orientation & NPT Size)

Description	
STAMP	Engineering Services, Signed & Sealed Calcs
STAMPCA	Engineering Services, CA Signed & Sealed Calcs

Note: Please consult factory or your sales representative to verify options and accessories will work with your light pole part number.

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