



LIFE 17 NAT-UK-000570 DuneLife Row ID 157

Dune Rejuvenation Penhale Dunes

Tender Pack for Notching and Turf Stripping Quotes

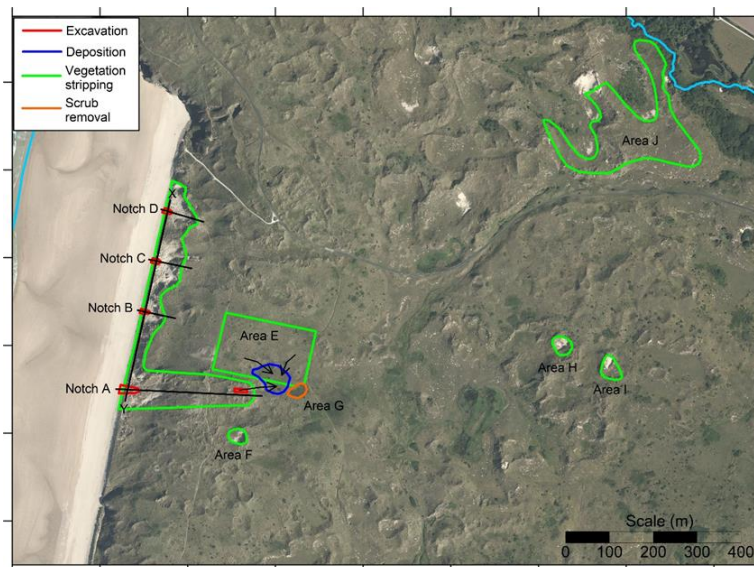


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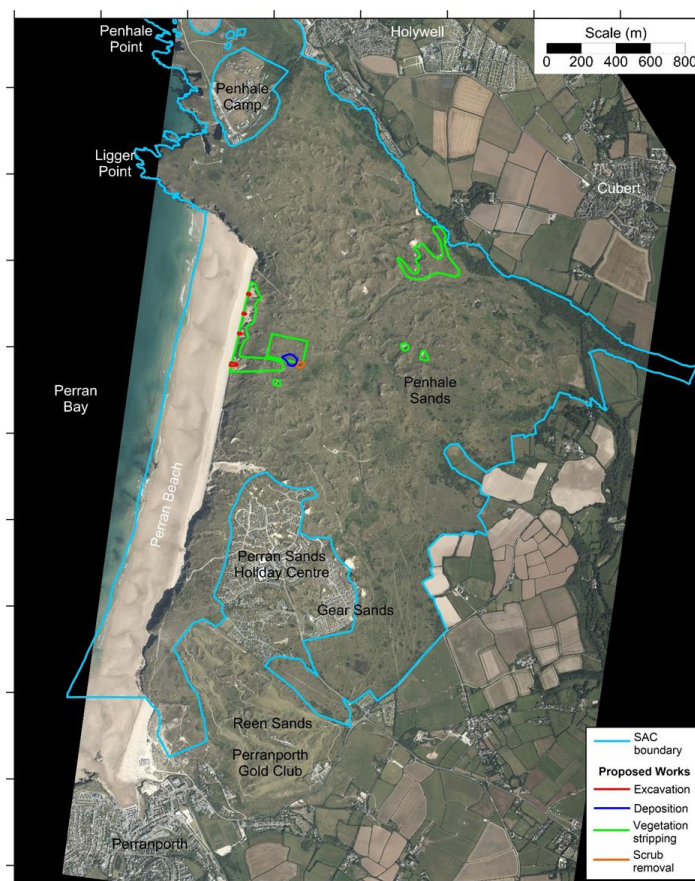


Dynamic Dunescapes is a partnership project rejuvenating sand dunes across England and Wales, supported by the National Lottery Heritage Fund and the EU LIFE Programme. Partners are Natural England, Plantlife, Natural Resources Wales, National Trust and The Wildlife Trusts.

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Location of works (notch A to D and surrounding turf stripping only)



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1. Background

The sand dunes at Penhale are both nationally and internationally important for their diverse range of coastal habitats. They are one of the largest sand dune systems in southwest England. The area is designated nationally as a Site of Special Scientific Interest (SSSI) and internationally as a Special Area of Conservation (SAC). Penhale Dunes SSSI and SAC covers 620ha in total. Qualifying features include the following.

H2120. Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes");

Shifting dunes with marram

H2130. Fixed dunes with herbaceous vegetation ("grey dunes"); Dune grassland *

H2170. Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*); Dunes with creeping willow

H2190. Humid dune slacks

S1395. *Petalophyllum ralfsii*; Petalwort

S1441. *Rumex rupestris*; Shore dock

S1654. *Gentianella anglica*; Early gentian



Figure 2a shows the SAC boundary at Penhale Dunes, the SSSI boundary follows the same line.

The Dynamic Dunes Project is a national partnership project aimed at improving the condition of the UK's sand dunes and increasing the level of engagement with land managers and the public. Sand dune habitats in England and Wales have been highlighted as one of the most at-risk habitats. The project includes the following objectives.

- conservation work to re-establish natural processes.
- a program of removal of native and non-native invasive species.
- restoration and creation of dune slacks and dune wetlands.
- turf stripping and sand scraping to create bare sand patches.
- on site interpretation and a national promotion program.
- community education activity, including a schools program
- a program of adult and youth volunteering

The work outlined in this proposal forms the main part of a scheme of works aimed at addressing some of the issues raised in Penhale SSSI condition assessment.

(<https://designatedsites.naturalengland.org.uk/ReportUnitCondition.aspx?SiteCode=S1004143&ReportTitle=Penhale%20Dunes%20SSSI>.) The condition assessment states, 'More bare sand, currently calculated at 2%, is required on the site within the Mobile Dunes and Fixed Dune Grassland for the site to achieve favourable condition'. The figure of 2% bare sand equates to 12.52ha. Figure 1 shows the reduction in bare sand across the dunes between 1946 and 2016.

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Cornwall Wildlife Trust commissioned a report from a Coastal Geomorphologist (latest version - Penhale Dunes – Proposals for Dune Rejuvenation V2, Report No EX1818, Kenneth Pye & Simon J. Blott, July 2022) to look at the possibility of carrying out dune notching within the sand dunes at Penhale. Similar notching work has been carried out at sand dunes across England and Wales, with significant work taking place at Newburgh Warren NNR in Wales in 2015. The work at Penhale will aim to include four notches and an area of vegetation stripping (figures 2a and b). The report outlined several notches labelled from A to D and six areas of turf stripping and scrub removal, areas E to J. Of the work areas proposed this document covers notches A to D and associated vegetation stripping. If funding becomes an issue the preference is to work in alphabetical order, working from notch A to D. Areas for vegetation stripping E to J may be considered in the future. The proposals outlined here aim to deliver 4.4ha of bare sand.

The area in which the notches are planned was characterized by extensive bare sand sheets and mobile dunes in the period 1946 to 2016, figure 1. The areas highlighted for rejuvenation will have minimal impact on the current populations of key species associated with Penhale Dunes SSSI/SAC designations.





**Figure 1 – Comparison of bare sand at Penhale dunes, left photo 1946 right photo 2016
Proposals For Dune Rejuvenation**

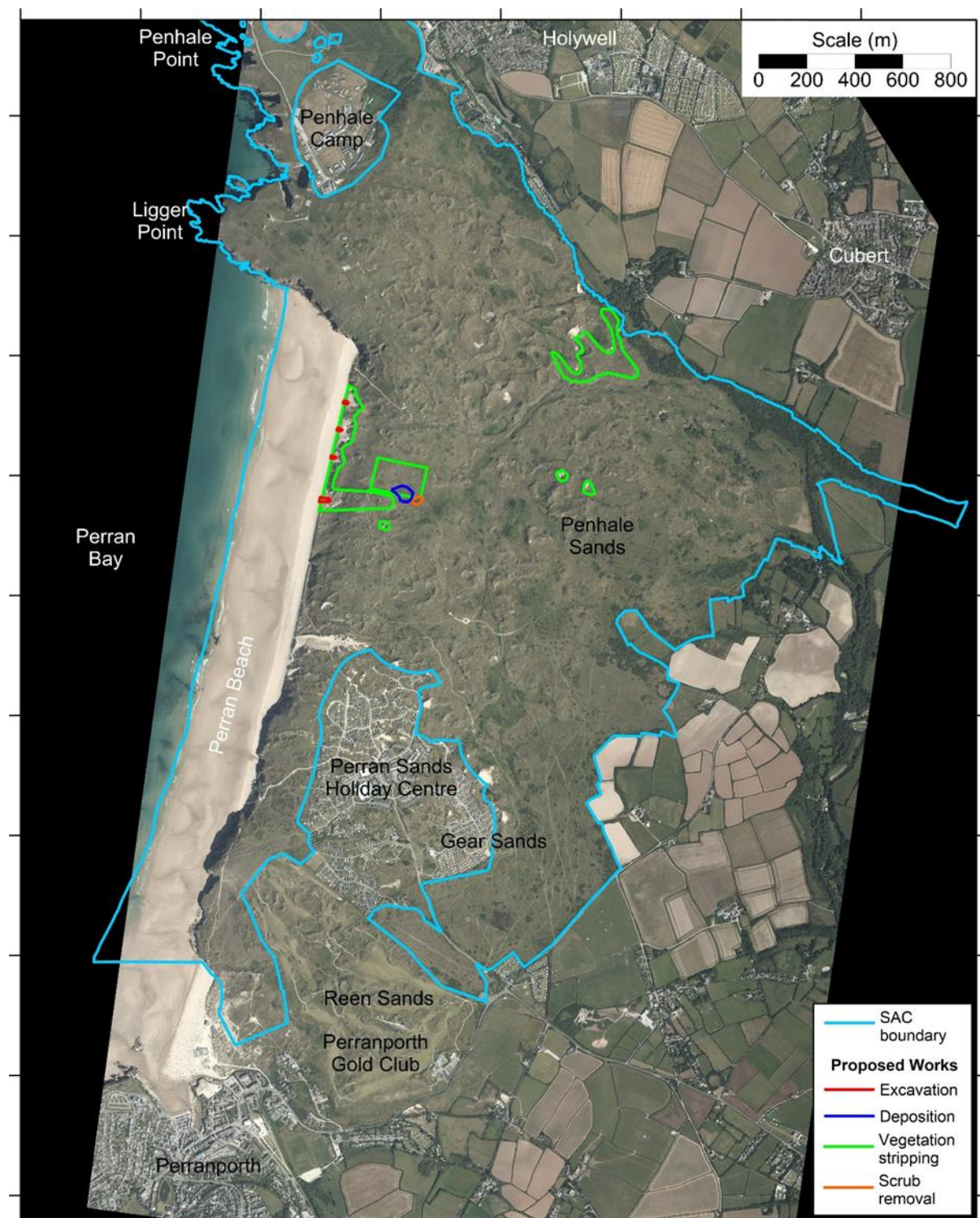


Figure 2a location of proposals and SAC boundary.

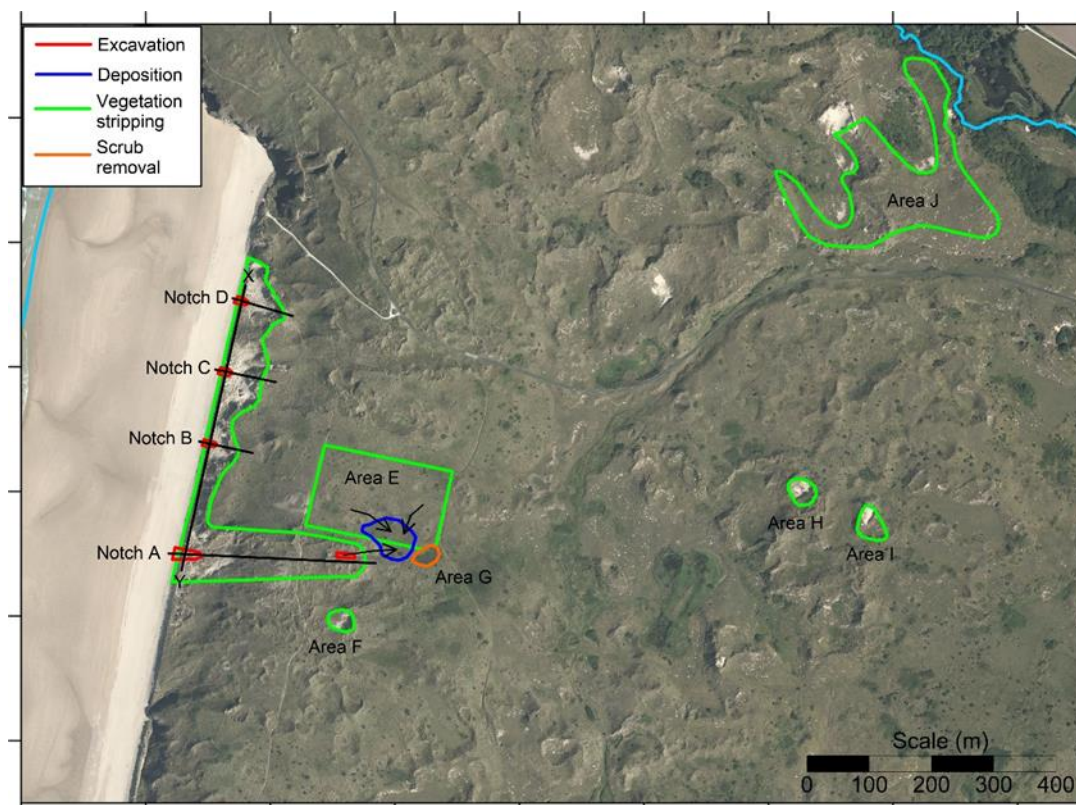


Figure 2b – proposed work area – Notches A to D.

2. Section 1 – Tender Process and Documents

i. Point of Contact and Contract Details

Enquires relating to this contract should be directed to the Penhale Dunes Ranger (employed by Cornwall Wildlife Trust). The contract will be between Cornwall Wildlife Trust and the appointed contractor. Payment will be given on completion of the contract. The work must be completed by the 31st October and may commence from the 14th July (subject to planning permission). Delivery of the contract will be overseen by the Penhale Dunes Ranger who will liaise regularly with the contractor inspecting work and monitoring progress on the ground. In the event of a dispute this will be settled between contract parties and will be discussed with Dynamic Dunes project team as funding providers.

Penhale Dunes Ranger Jon Cripps, jon.cripps@cornwallwildlifetrust.org.uk

Contact Number 07500 080385

Address: Cornwall Wildlife Trust, Five Acres, Allet, Truro, Cornwall TR4 9DJ.

The landowner is the Ministry of Defence and the training area falls under the Defence Infrastructure Organisation. The Dunes Ranger will act as liaison between the contractor and the landowner should any need for communication arise.



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ii. Procurement Timetable for Notching and turf stripping

The successful contractor will be formerly appointed in July 2023 once all consents and planning permission has been issued for the works. The timetable below sets out the procurement calendar for the work. Contractors wishing to submit a price must arrange to meet the Dunes Ranger on site to allow an opportunity to discuss the works and method statement in detail.

Stages	Dates
Opportunity to view Notching and turf stripping work on site	Please arrange a mutually convenient date and time with Penhale dunes ranger before the submission date.
Tender Return Date (post or email) Email – jon.cripps@cornwallwildlifetrust.org.uk Post – Jon Cripps, Cornwall Wildlife Trust, Five Acres, Allet, Truro, TR49DJ.	Wednesday 5 th July by 12 noon
Expected date of Award	Friday 7 th July 2023

iii. Award Criteria

Tenders will be discussed by a panel consisting of

- Penhale Dunes Ranger
- Cornwall Wildlife Trust Reserves Manager

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The tenders may be scrutinised by members of the Dynamic Dunes Project Management Team. The scoring criteria will be based primarily on price. In selecting a contractor, the award panel will be looking to ensure that delivery can be guaranteed within the timescales set out in the tender pack. This will form an important element of the tender evaluation process. Tenders will be asked to give examples of where they have carried out similar operations in the past and / or worked in similarly protected environments.

iv. Tender Return Form

The contract covers Notching, Turf stripping and associated profiling. For the purpose of the contract Cornwall Wildlife Trust would like the price broken down into five parts as follows.

1. Notch A and associated turf stripping and profiling
2. Notch B and associated turf stripping and profiling
3. Notch C and associated turf stripping and profiling
4. Notch D and associated turf stripping and profiling
5. Additional turf stripping around all notches



Cornwall Wildlife Trust are looking to employ a single contractor for the work. The contract sum should include all costs associated with travel, subsistence and any other disbursements linked to the delivery of the works. Contractors will also be required to supply evidence of suitable **public liability insurance cover (min value £10 Million) and Employers Liability where appropriate (£10 million)**. The tender should be marked with the following project code; **LIFE 17 NAT-UK-000570 DuneLife Row ID 157**.

The form (bill of quantities) and supporting information should be returned to Cornwall Wildlife Trust no later than 12 noon on Wednesday 5th July. The envelope or email should be marked Penhale Dunes Notching Tender Return. Electronic PDF copies may also be submitted by the same deadline and addressed to jon.cripps@cornwallwildlifetrust.org.uk. Submissions will receive an acknowledgment and tenders will be notified of the outcome by Friday 7th July.

v. Additional Supporting Information

Tenders may choose to submit any supplementary information that they wish in support of their application and competency to deliver the works.

Other Relevant Information

In submitting a price contractors should also be aware of additional information relevant to the site which includes:

vi. Method Statements and Risk Assessments

Cornwall Wildlife Trust will provide a site-based RA prior to works and the successful contractor will be expected to produce their own documentation to cover the works delivery. This will need to be submitted the week before works commence for sign off by the Penhale Dunes Ranger. These should be kept under review as the work site is in a dynamic zone and updated according to circumstances on site.

The work area is within a military training area. The work area has been subject to an Explosive Ordnance Clearance Group (EOC Gp) Recce on 29th July 2020. The recce was carried out by 29 EOD&S Group Support Unit. The recce concluded the area currently safe to carry out the described work. No live items of UXO were found on the recce. No further EOC is required on this site. Extra vigilance is still required due to the work areas military history, as such a bank man is recommended to monitor works as they take place. Should any suspicious items be uncovered retreat to a distance of 100m and inform the Landmarc Range Warden (phone number will be supplied) and Penhale Dunes Ranger and await further instructions.

The Penhale Dunes Ranger will give a full site induction to the contractor to ensure that hazards and risks are identified, and mitigation discussed. A particular emphasis will be placed on working in a publicly accessible space and ensuring designated features of the SSSI / SAC are protected. The site will be marked out prior to works and the Penhale Dunes Ranger will



attend the work area regularly to check on progress. There will be a high level of local interest in the work, so it is vital that method statements and statutory standards are adhered to.

The tender shall provide a Risk Assessment and Method Statement for the works. The tender shall also provide a Construction Environmental Management Plan.

vii. Public Access and Archaeology

The Southwest Coast Path runs along the beach below the work area and all sides of the work area are accessible by the public. There will be no impact on the Southwest Coast Path section along the beach. The popular beach of Perranporth abuts the work area. A permissive path runs along the dune ridge through the work area at Notch A. It is not acceptable to prevent access across the permissive path. Machinery will need to be guided by a banks man when in the vicinity of the permissive path and give way to path users. The access route to the work area is through the restricted access military training area. The training area is still liable to small amounts of trespass and the contractor should be aware of this. The contractor should have appropriate warning signs in position when on site and staff should be briefed to expect contact with the public. The contractor will be supplied with 'A' frame notice boards outlining the reasons for the work and contact details for the project staff for further information. It will be the contractor's responsibility to maintain signs and move them through the work area as work progresses.

The dunes have a long history of cultural and religious use and mineral extraction. There are also bronze age settlements on the headlands to the north of the work area. It is not anticipated that the work will impact on these features as they are all a distance from the work area. However, it is recommended that a banks man be used to monitor excavation work and should any items of interest be found, work in that immediate area should cease immediately and the Penhale Dunes Ranger be notified. The Dunes Ranger will then contact Cornwall Council Historic Environment Service for further advice. The Dunes Ranger will attend the work area regularly to monitor progress.

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Viii Site Access

Daily access to the military training area will be through the south gate entrance. Access to the work area will be via a surfaced road through the training area then an unsurfaced track. The route will be shown to tenders during the pre-tender site visit. A 4x4 will be necessary to get to the work area. Machinery will be brought in via the Holywell Bay entrance to the training area. There will be no access onto or from the beach. All work will take place from the dunes above the mean high-water line.

ix. Statutory Designations, Protected Species and EPS Licence

The dune system is a Site of Special Scientific Interest and a Special Area of Conservation. SSSI consent for the works will be sought through the planning application process. As the site is also an SAC a habitats regulations assessment (HRA) will also be required. Again this will be



sought as part of the planning application process and has to be completed by the competent authority.

European Protected Species are present on site. Species present are Dormouse (*Muscardinus avellanarius*), Early Gentian (*Gentianella angelica*), Petalwort (*Petalophyllum ralfsii*) and Shore dock (*Rumex rupestris*). The nearest dormouse record to the work area is over 1km away and the habitat between unsuitable. The nearest shore dock record is over 350m away and the habitat between and around the work area unsuitable. A population of Early gentian is present adjacent to the access track to the work area. The Dune Ranger will mark the area prior to work taking place to ensure no damage is caused.

A population of Scramble egg lichen (*Fulgensia fulgens*) is present near the work area. This will be marked by the Ranger prior to the work taking place.

Silver studded blue (*Plebejus argus*) butterflies are present throughout the dunes. They are more closely associated with short turf fixed dune more inland from the work area. That is where their chosen nectar sources are and the ants associated with their life cycle.

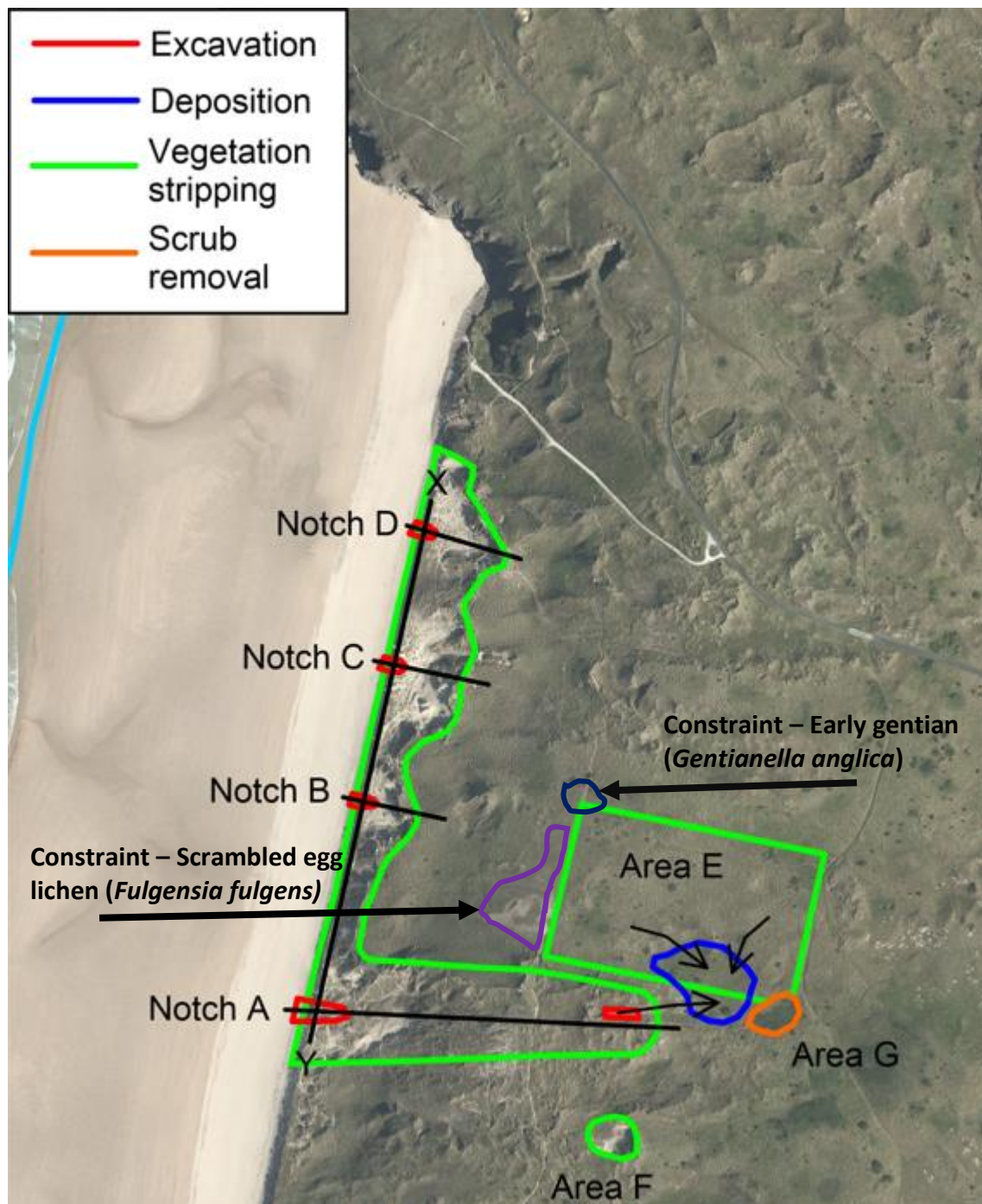
A reptile survey has been carried out in the work area and mitigation measures recommended. These measures will be carried out prior to the work taking place. Further information on species mitigation measures can be found in the 'Dynamic Dunes Cornwall Project Area – Avoidance and Mitigation Measures for Protected Species' document. This will be provided to contractors.

The Dunes Ranger will give a detailed briefing to all staff involved in delivering the contract. This will include a site walk and species induction. All new staff working on site during the contract will be briefed by the Dunes Ranger.

The Dunes Ranger will attend the works frequently to monitor progress and ensure marked areas are visible and avoided.

In the event that any protected species are disturbed or identified work will stop immediately and will be subject to discussion with Natural England.





x. Site Conditions and Services

The dunes are free draining. The work area is very exposed, facing west. This could have some impact on delivery and should be considered when compiling costs. There are steep slopes, and this should be considered when agreeing the methodology. The substrate may vary from loose sand, vegetated dune to weathered bedrock.



There are no known overhead or underground services present but it will be up to the contractor to satisfy themselves that this is the case.

xi. Fuels and oils

Fuel will be transported, stored and handled within guidance set out by COSHH. Machinery will be refuelled on the hard standing area marked in Appendix 1 away from the work area. The contractor will be responsible for supplying spillage kits with sufficient capacity for the equipment being used and will be present throughout the works. A welfare facility can be positioned as illustrated on Appendix 1.

Insurance, Staff Competency and Experience

Plant operatives must have appropriate and current certification for their equipment. Plant operatives must have experience appropriate to the work tendered for. Copies of certification will be retained on file covering Public liability, employer liability, and professional indemnity insurance to industrial standards.

xi Works Window

The work can start from the 14th of July, subject to planning permission being granted. The work will need to be complete by the end of October and all invoices received by 30th November 2023. There is no flexibility to reprofile the work timetable.

xiii. Other Parties onsite

The work area is part of an active military training area. The Dunes Ranger will act as a point of liaison between military operations and the contractor. The dunes ranger will inform the contractor of any operations happening during the work. Military Training will not take place in the immediate area of the work, but the daily access route may be shared. The dunes ranger will liaise with all parties to ensure delays to access are limited.

xiv. Press and Publicity

The Dynamic Dunes Engagement Officer and Dunes Ranger will handle press and publicity around the works. They will provide onsite signage to indicate why the work is taking place. Any enquires regarding the work should be forwarded to them.

i. Section 2 Description of the Notch and Turf Stripping work required

This section summarises the works required for each notch. The pre submission site visit will provide an opportunity to view the areas on the ground. The dunes at Penhale are perched, the sand lying on weathered bedrock. Notches at Penhale will have a steeper gradient than on other dune sites around the UK. All work will be carried out from the land ward side with no access to the intertidal zone. All notches will all have concave – convex side slopes with a



maximum mid-section slope of 1 in 1, see figure 3.

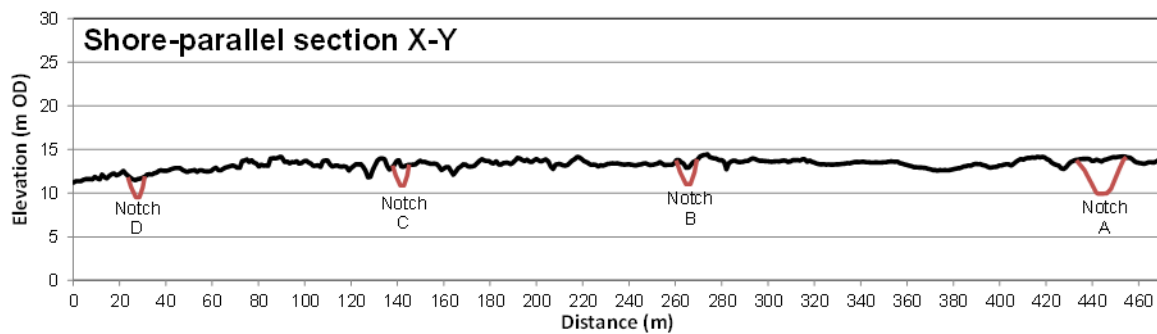
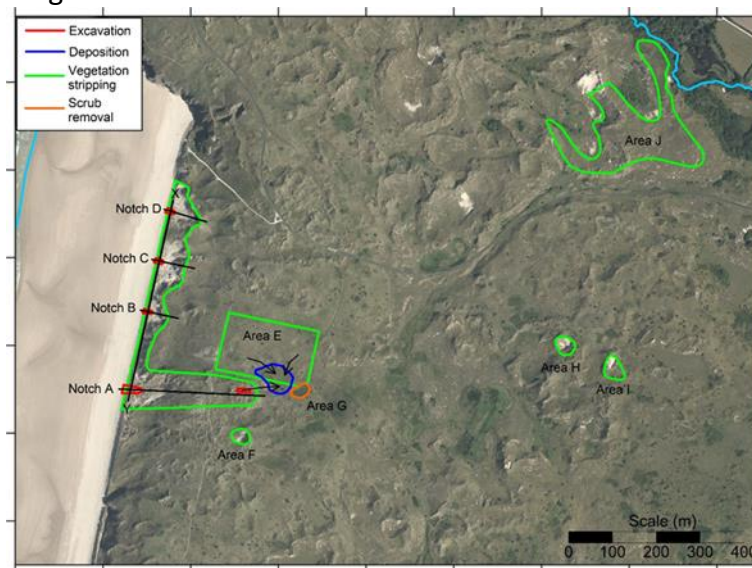


Figure 3. Shore-parallel section across the frontal dunes at location of the proposed notches A-D, taken from the LiDAR DTM flown 26/04/2017; the red line indicates the proposed profile after notching.



Notch locations

Notch A

The excavation of Notch A will be approximately 44m long. It will be approximately 20m wide at the seaward end and 12m wide at the landward end. It will have a maximum depth of 3.5m. Notch A requires vegetation stripping as shown in figure 4a and b.

The aim of this level of vegetation stripping is to create a bare sand corridor between the beach and head of a parabolic dune which lies on the landward side of the coast path. At present there are a number of small wind-scoured hollows within the crest of this dune. It is proposed to enlarge these creating a notch approximately 8m wide, 3m deep and 24m long (the inland red rectangle on figure 4). This will maximise wind flow and sand transport over the dune crest. Figure 5 shows a cross section of the frontal dune.

As mentioned above work in this area will not require access to the beach, it will be carried out by a long reach 360 degree excavator, bulldozer and dumper. Appendix 1 shows the route into the work area in black, the route to the south will be used. The route uses an existing track used by the military for 4x4 training. It then crosses marram dominated dune avoiding key areas of scrambled egg lichen and a lawn of early gentian.

Vegetation will be stripped using a riddling bucket and land rake bucket (sieve like buckets) to separate organic material from clean sand. Organic material will be moved to the sacrificial area outlined in blue on figure 6 and covered in any surplus excavated sand or buried within the dune more locally. The material will be transported using a dumper. The work will start at the seaward end working towards the head of the parabolic dune to minimise distance covered. Excavated sand will be used to build up the southern side of the rejuvenation area and aid wind flow through the area. Any sand not required for this purpose will be deposited in the area outlined in blue in figure 6 beyond the head of the parabolic dune or graded into the dune locally. The area of turf stripping extends for approx. 250m in land. The area of the front notch will be 640m² and the volume of sediment moved 300m³. The landward notch covers an area 190m² and will require approximately 150m³ of sediment to be moved.

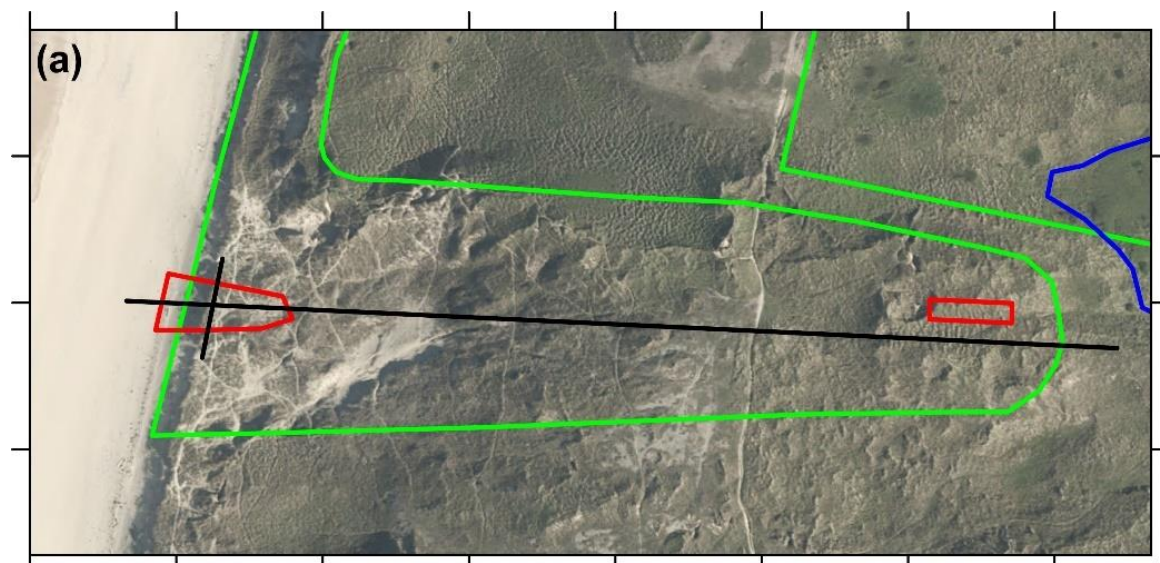


Figure 4a aerial view of notch and turf stripping.

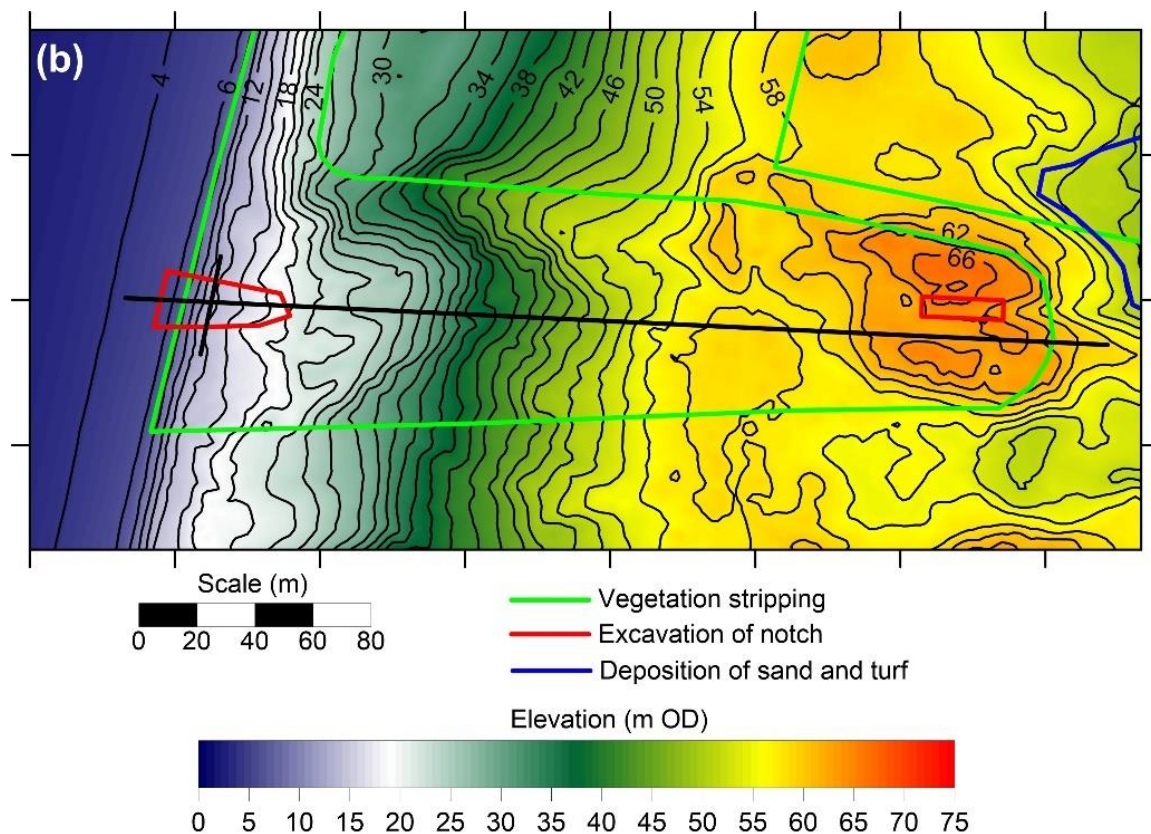


Figure 4b – topographic illustration of Notch A.

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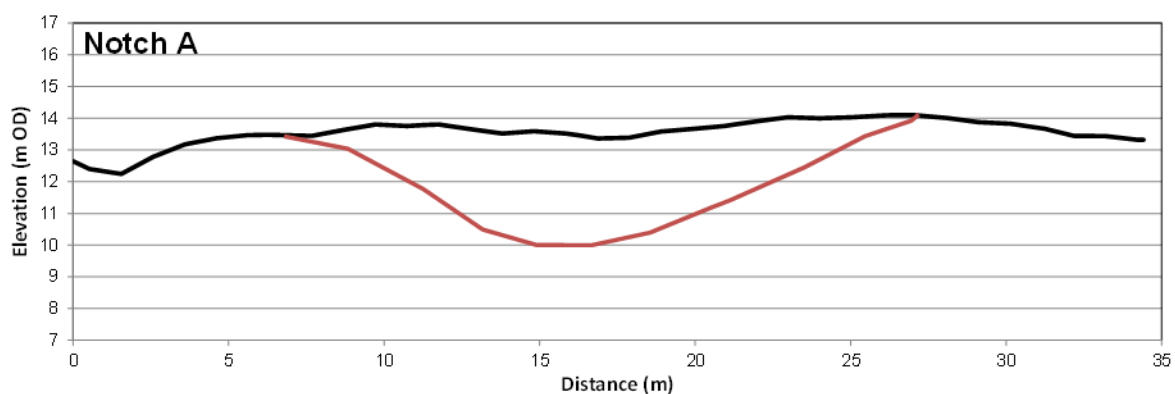


Figure 5 Shore-parallel section across the frontal dunes at location of the proposed notch A, taken from the LiDAR DTM flown 26/04/2017; the red line indicates the proposed profile after notching

Notch B to D

The excavation of Notch B will be approximately 20m long and 10m wide at the seaward end. It will narrow to 6m wide at the landward end. The location is illustrated in figure 6 and

the longitudinal section in figure 7. Notch B has an area of 178m² and a volume of 80m³ with a maximum depth of 2m.

The excavation of Notch C will be approximately 20m long. The excavated sand will be used to fill a depression immediately behind the existing most seaward ridge. It will be 10m wide at the seaward end narrowing to 9m wide at the landward end. Notch C has an area of 196m² and volume of 80m³ with a maximum depth of 2m.

The excavation of Notch D will be approximately 20m long. It will be 10m wide at the seaward end and 6m wide at the landward end. Notch D has an area of 191m² and a volume of 80m³ and a maximum depth of 2m.

The sand excavated from each of the notches B to D will be placed at the head of each notch where it will be available to aeolian processes.

Access to notches B to D is marked in black on appendix 1. As with notch A the route follows an existing track used by the MOD. The route continues east west at the northern edge of the work area. Particular attention will be paid to the route over the dune ridge as it skirts an area of early gentian. This population will be marked with tape to ensure it is avoided. Once passed this the route continues through marram dominated dune. This route will be the only route used in and out of the work area.

If budget allows vegetation stripping will take place around each of the notches. This will involve the use of a riddling bucket and land rake bucket to separate organic material from clean sand. Excess organic material will either be buried at the heads of the notches under clean sand or removed to the sacrificial area and covered in clean sand as describe above. The route to the sacrificial area will be along the black lines as per the route in and route to notch A work area.



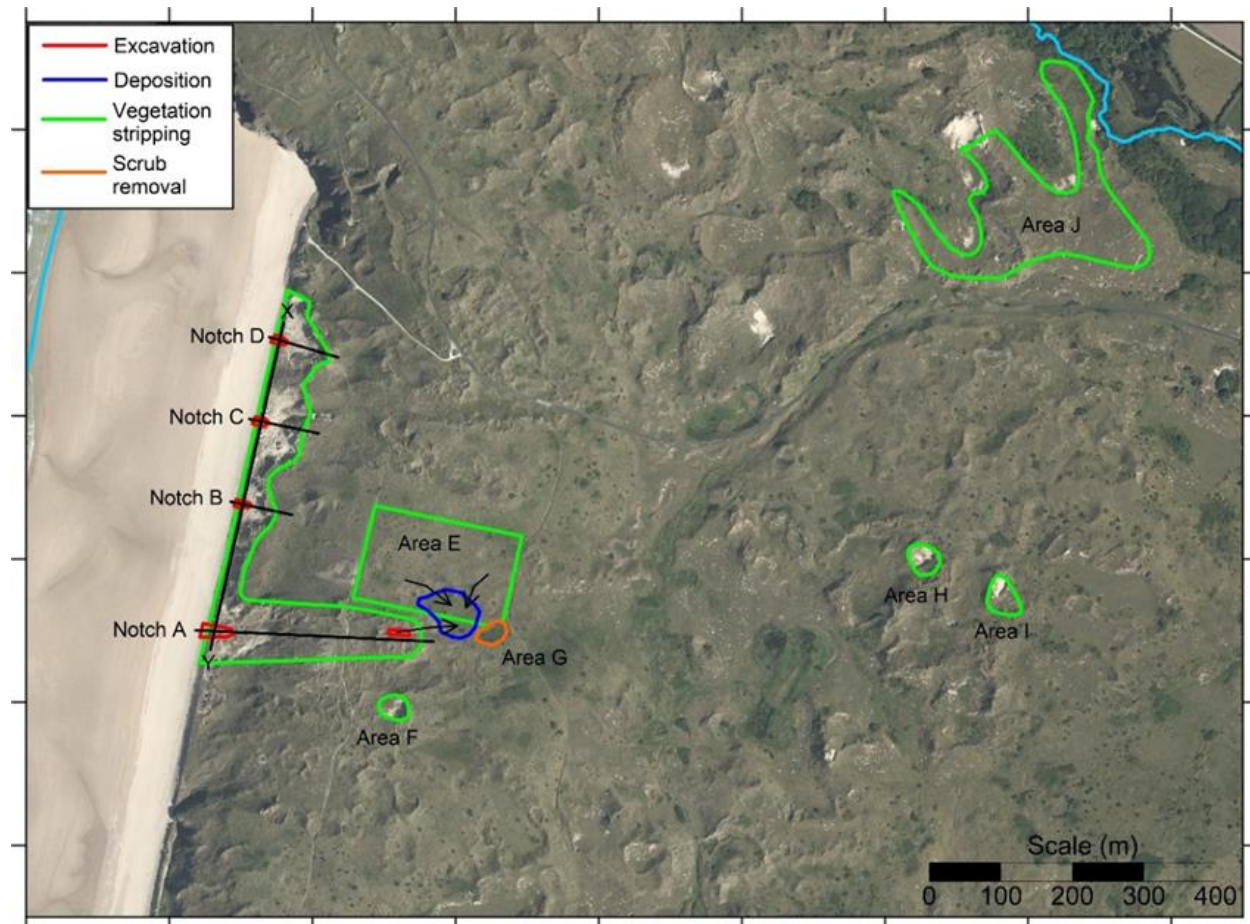


Figure 6 – Notch locations A to D and deposition area

Further to the above information figure 8 shows the changes to the longitudinal sections of the frontal dune in each notch and compares them to currently active section of the dune to the south of the proposed work.

Figure 7 shows the proposed work three dimensionally, illustrating the steep rise of the perched dunes. It also shows the work in relation to a 1:200 year storm event.

Figure 9 shows the work areas compared to mean high water and a 1:200 year storm event. Both figures 8 and 9 show the height of the works being clear of a 200 year storm in notches B to D> they show the base of notch A approaching storm level. Given the steepness at which the dunes rise this will not have an impact as the dunes are not classed as a flood defence and will not get inundated.

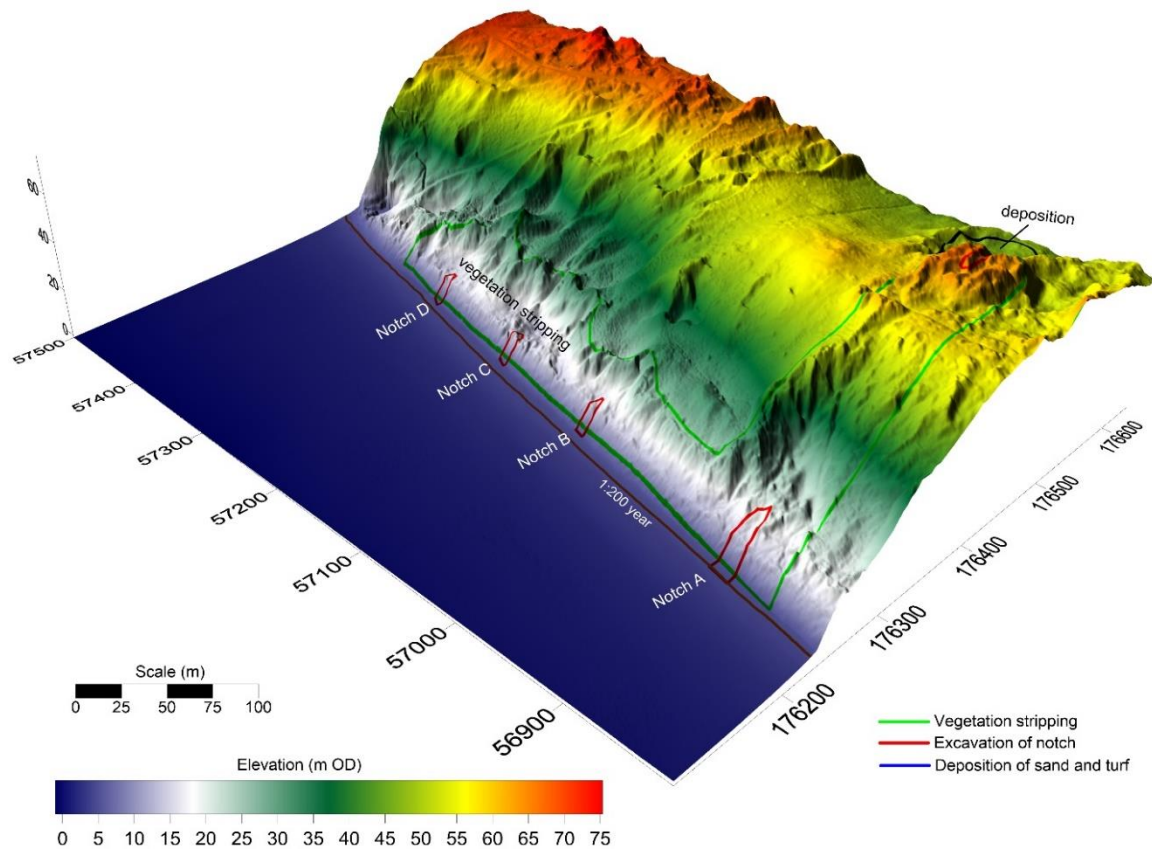


Figure 7. Three-dimensional digital terrain model of the area of proposed Notches A to D, generated from EA LiDAR data flown on 18-19/09/2020. The locations of notches and 1:200 year storm level are also shown.

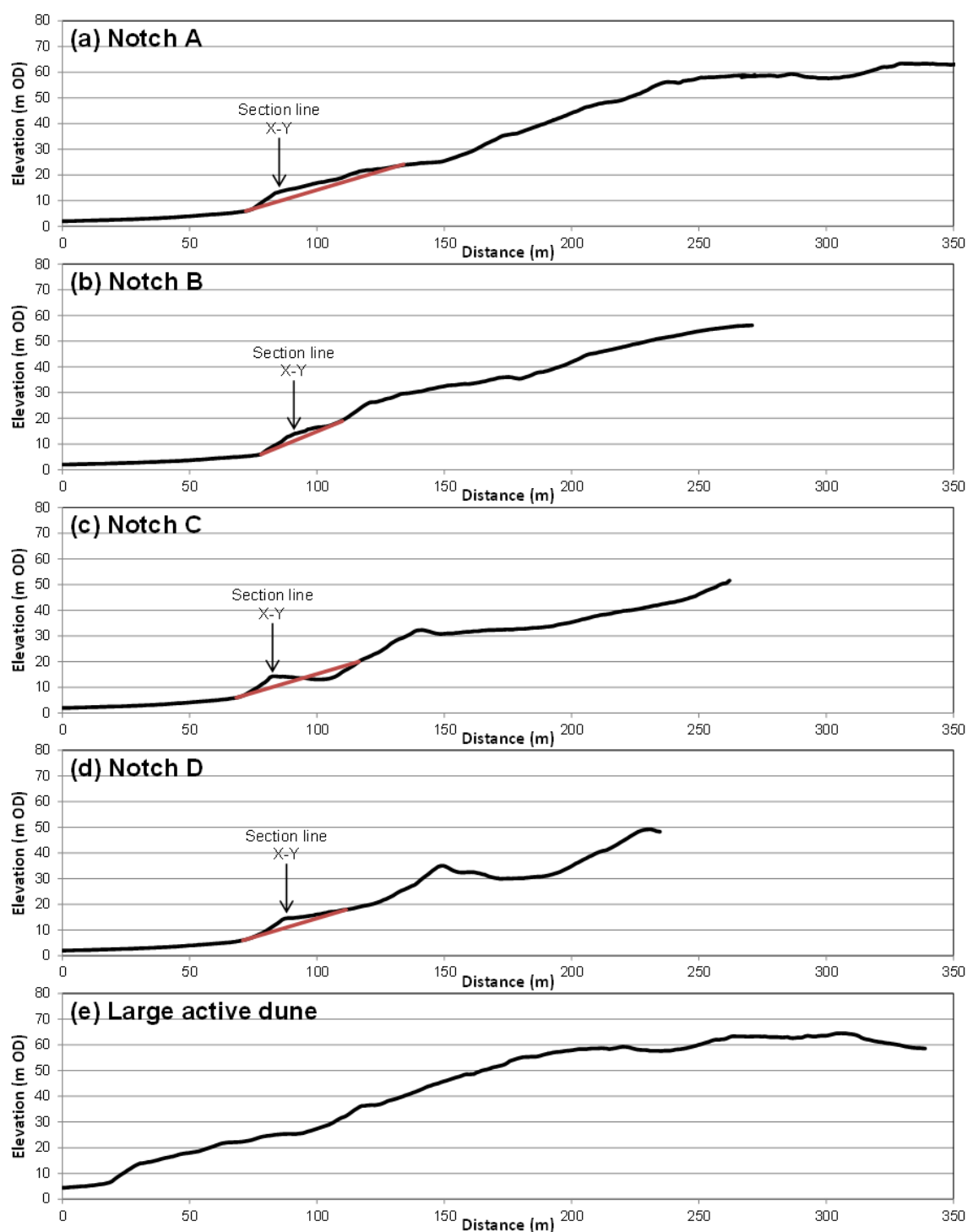


Figure 8. Longitudinal-sections of the frontal dunes at the locations of the proposed notches A-D and the existing active elongate parabolic dune located c. 600m to the south of notch A, taken from the LiDAR DTM flown 26/04/2017; the red line indicates the proposed profile after notching

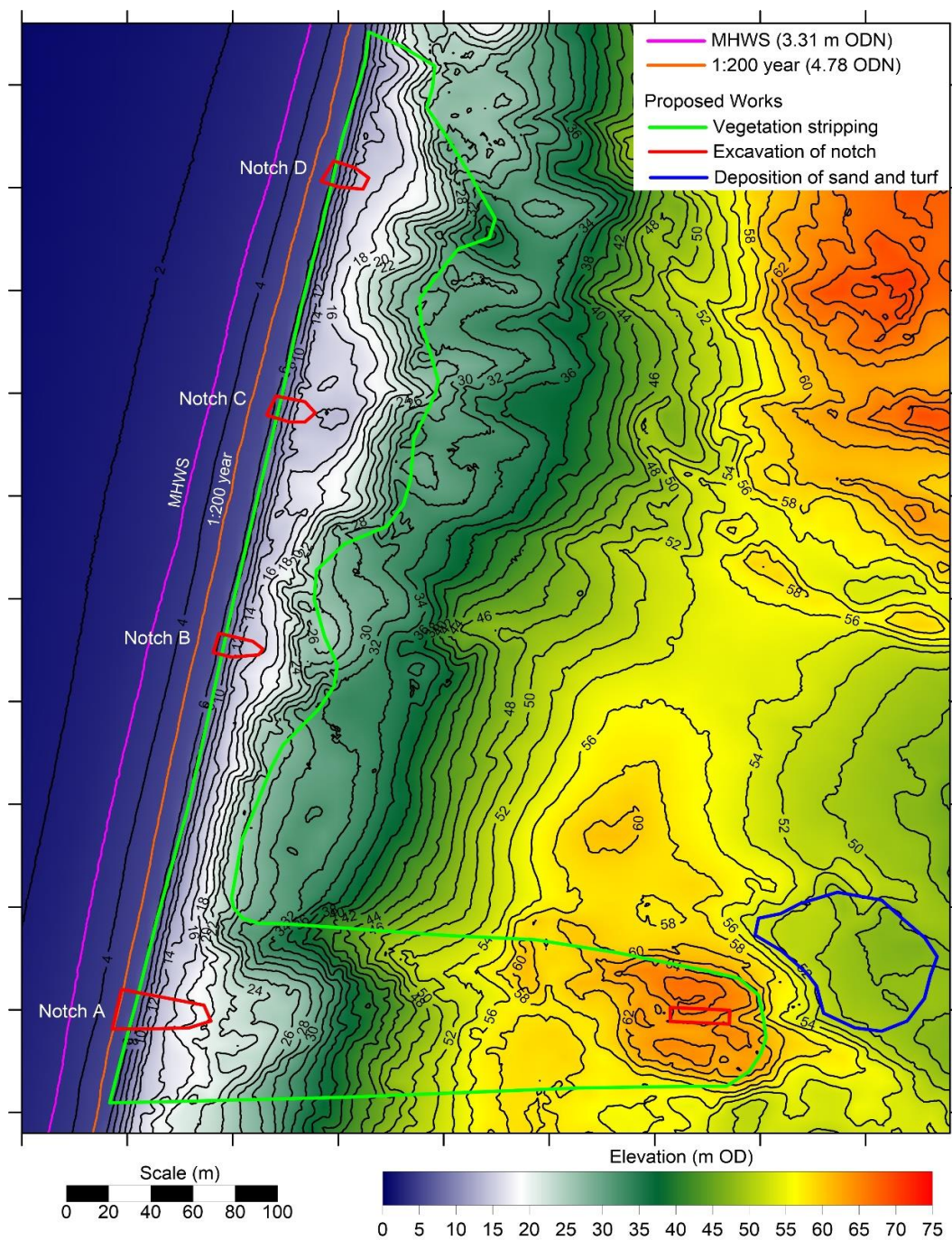


Figure 9. Digital terrain model of the area of proposed Notches A to D, generated from EA LiDAR data flown on 18-19/09/2020. The MHWS and 1:200 year storm levels (using a base year of 2017) are also shown

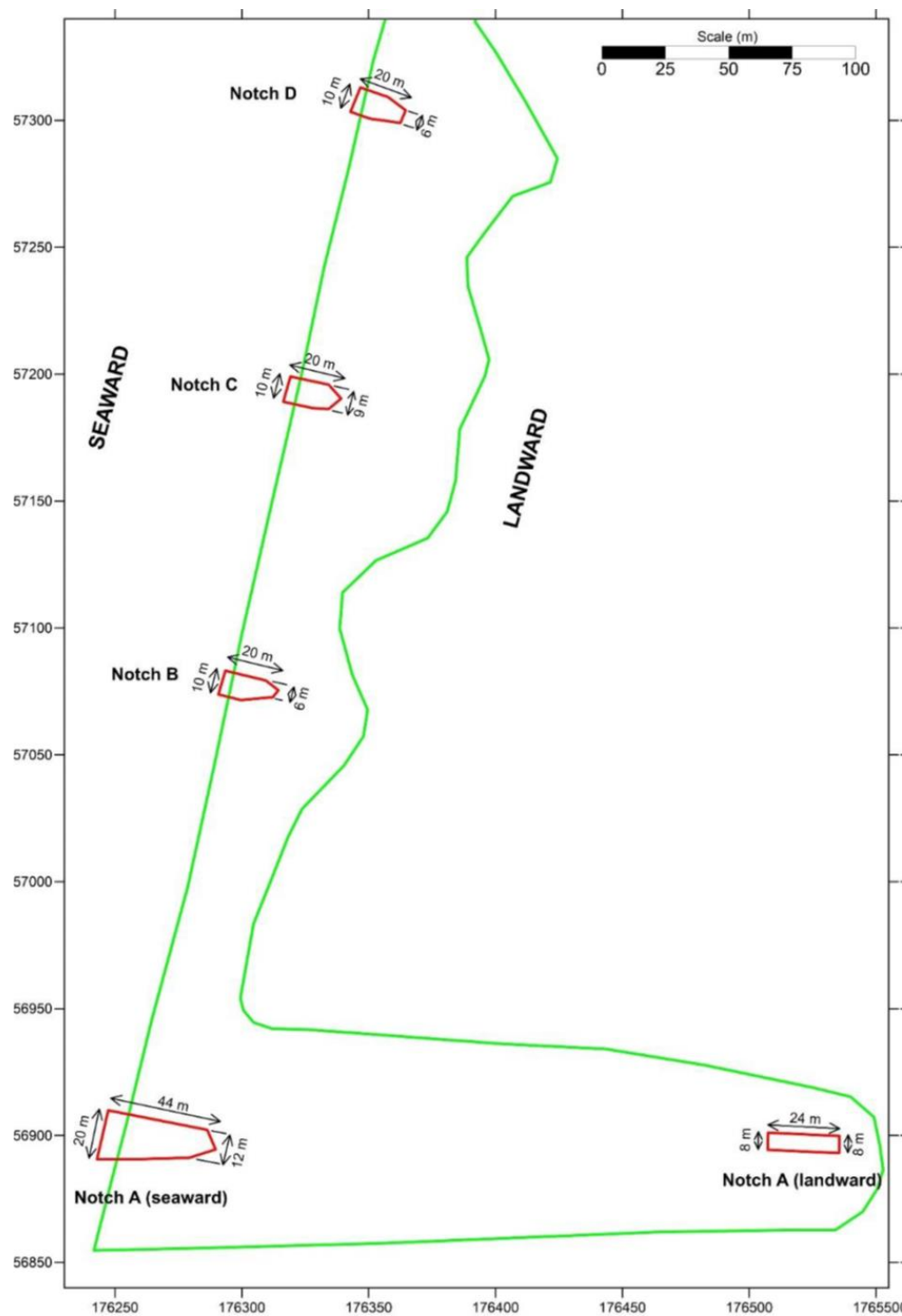
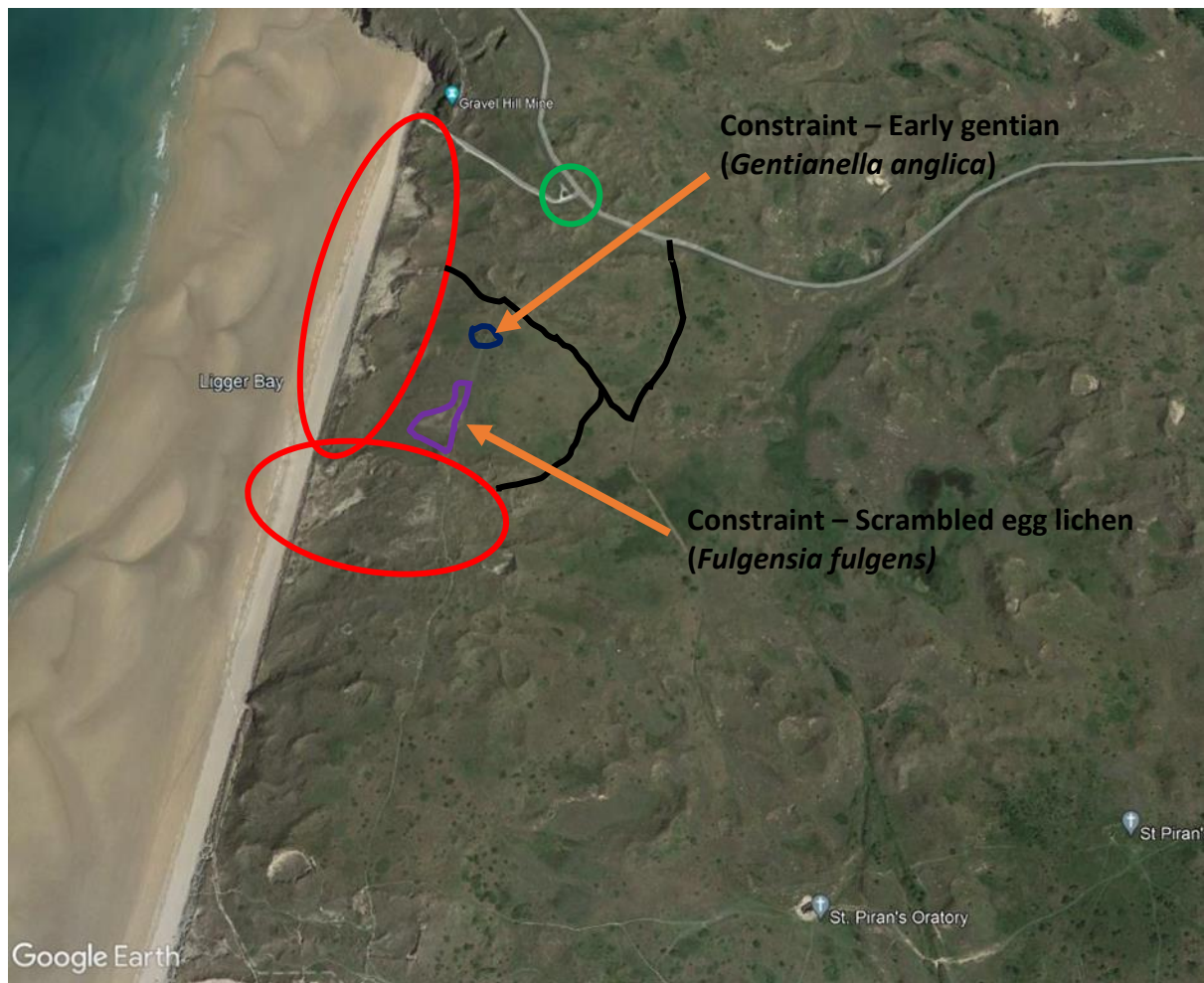


Figure 10 Schematic plan diagram showing the dimensions of the proposed notches.

Feature	Volume (m3)	Area (m2)	Notes Length (m)	Max width (m)	Max depth (m)
Notch A seaward	c. 300	640	44	20	3.5
Notch A landward	c. 150	190	24	8	3.0
Notch B	c. 80	178	20	10	2.0
Notch C	c. 80	196	20	10	2.0
Notch D	c. 80	191	20	10	2.0
Areas A-D	0	44239	Vegetation stripping of frontal dunes around notches A-D		



Appendix 1 – Site Access track and refuelling area



Work areas in red, access track black and fuelling / welfare green

Work Area Pre Work Photographs



Notch A top of dune location



Notch A turf stripping area



Notch A view inland from seaward Notch



Notch A location of seaward Notch



Notch B location



Notch C location



Notch D location

Exact Location of Notches

Table 4. Positions of the edges of the proposed Notches, shown on Figures 3 to 7

Label	Easting	Northing
Notch A		
A	176243	56891
B	176245	56900
C	176247	56910
D	176264	56891
E	176266	56898
F	176269	56906
G	176279	56891
H	176286	56902
I	176290	56896
Notch A inland		
A	176489	56895
B	176489	56898
C	176489	56902
D	176507	56894
E	176507	56897
F	176507	56901

G	176535	56893
H	176536	56900
I	176535	56896

Notch B

A	176291	57074
B	176292	57079
C	176294	57083
D	176305	57072
E	176305	57076
F	176306	57080
G	176312	57073
H	176310	57079
I	176314	57075

Notch C

A	176316	57189
B	176318	57194
C	176320	57199
D	176330	57186
E	176332	57191
F	176333	57196
G	176334	57186
H	176336	57194
I	176339	57190

Notch D

A	176342	57303
B	176344	57307
C	176348	57313
D	176357	57300
E	176359	57303
F	176360	57308
G	176362	57299
H	176364	57305
I	176363	57302



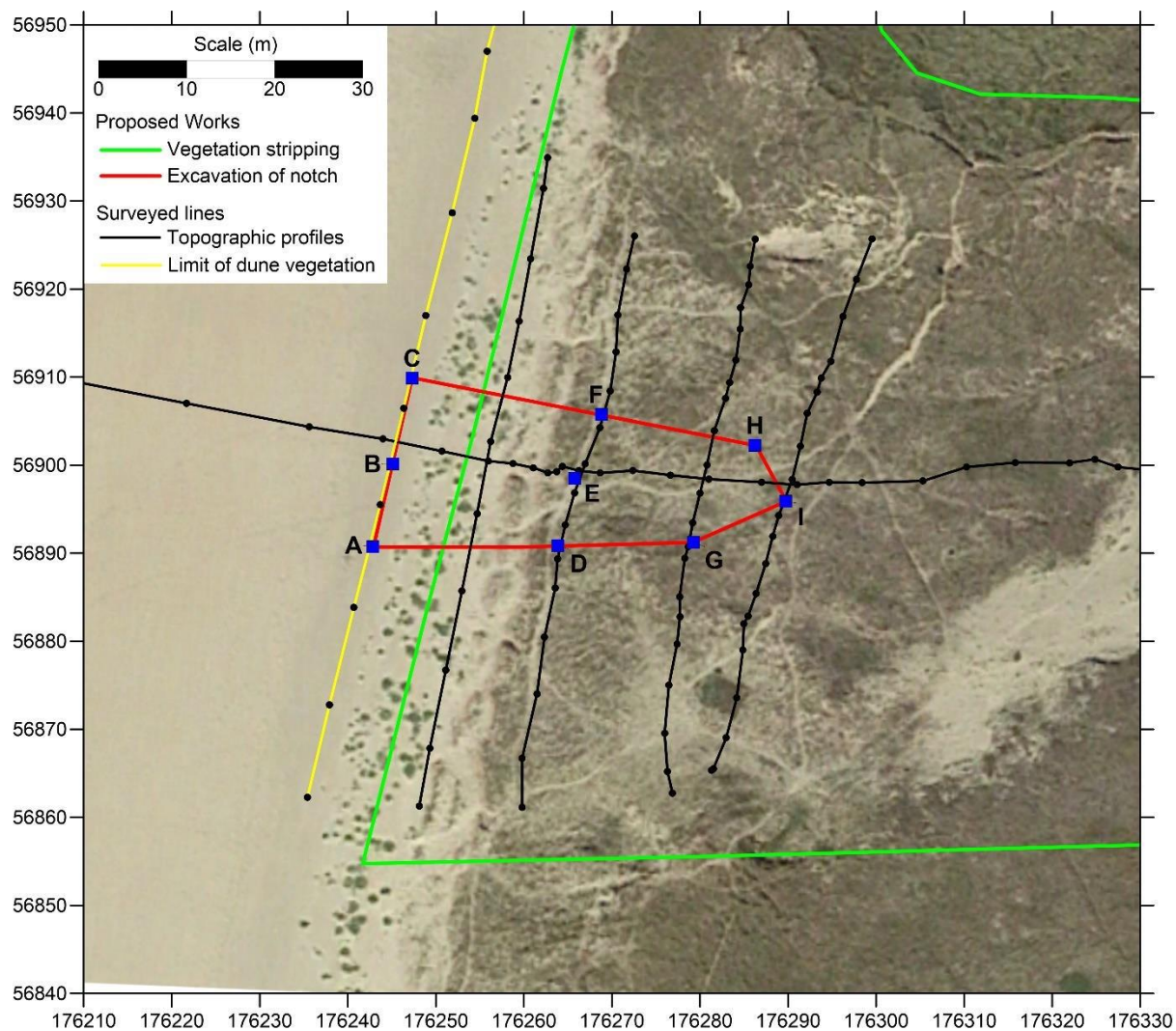


Figure 3. Enlargement of Notch A, showing lines surveyed on 16/09/2022, overlaid on aerial photography flown 22/04/2021, and proposed areas of excavation and vegetation stripping. Location points A to I are shown with blue squares, and listed in Table 4

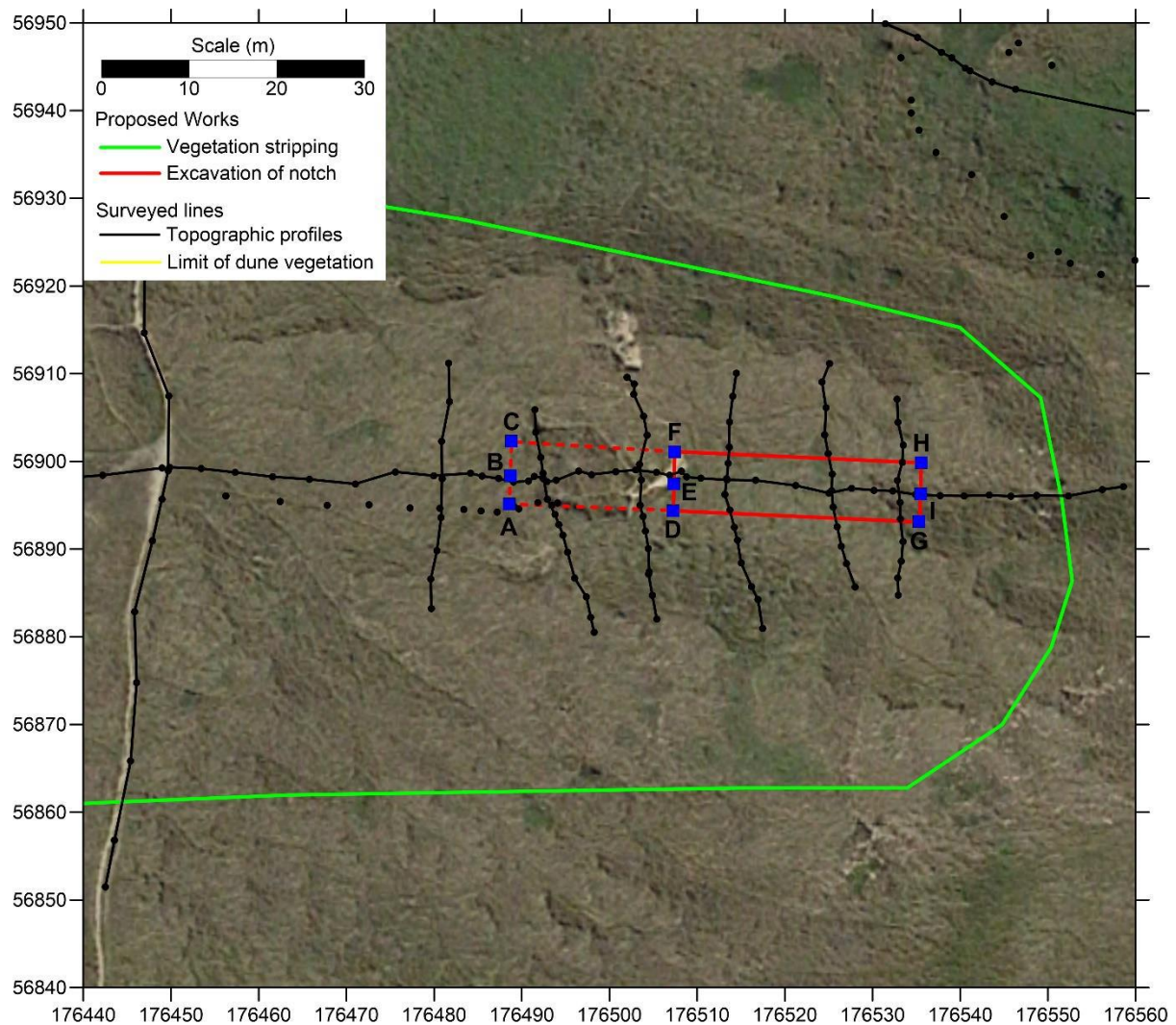


Figure 4. Enlargement of the inland area of Notch A, showing lines surveyed on 16/09/2022, overlaid on aerial photography flown 22/04/2021, and proposed areas of excavation and vegetation stripping. The dashed red area shows a possible extension of the excavation area to the west. Location points A to I are shown with blue squares, and listed in Table 4

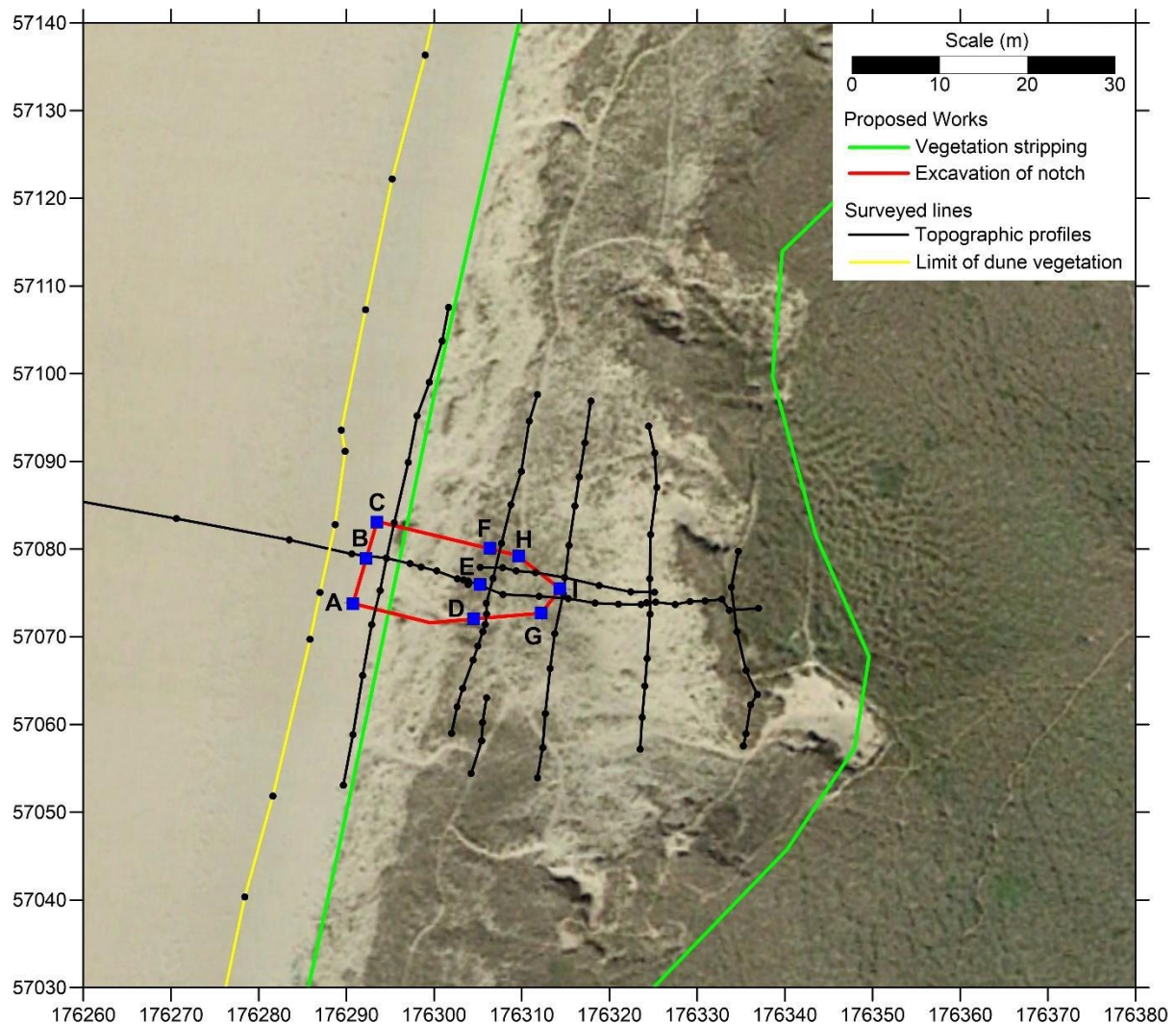


Figure 5. Enlargement of Notch B, showing lines surveyed on 16/09/2022, overlaid on aerial photography flown 22/04/2021, and proposed areas of excavation and vegetation stripping. Location points A to I are shown with blue squares, and listed in Table 4

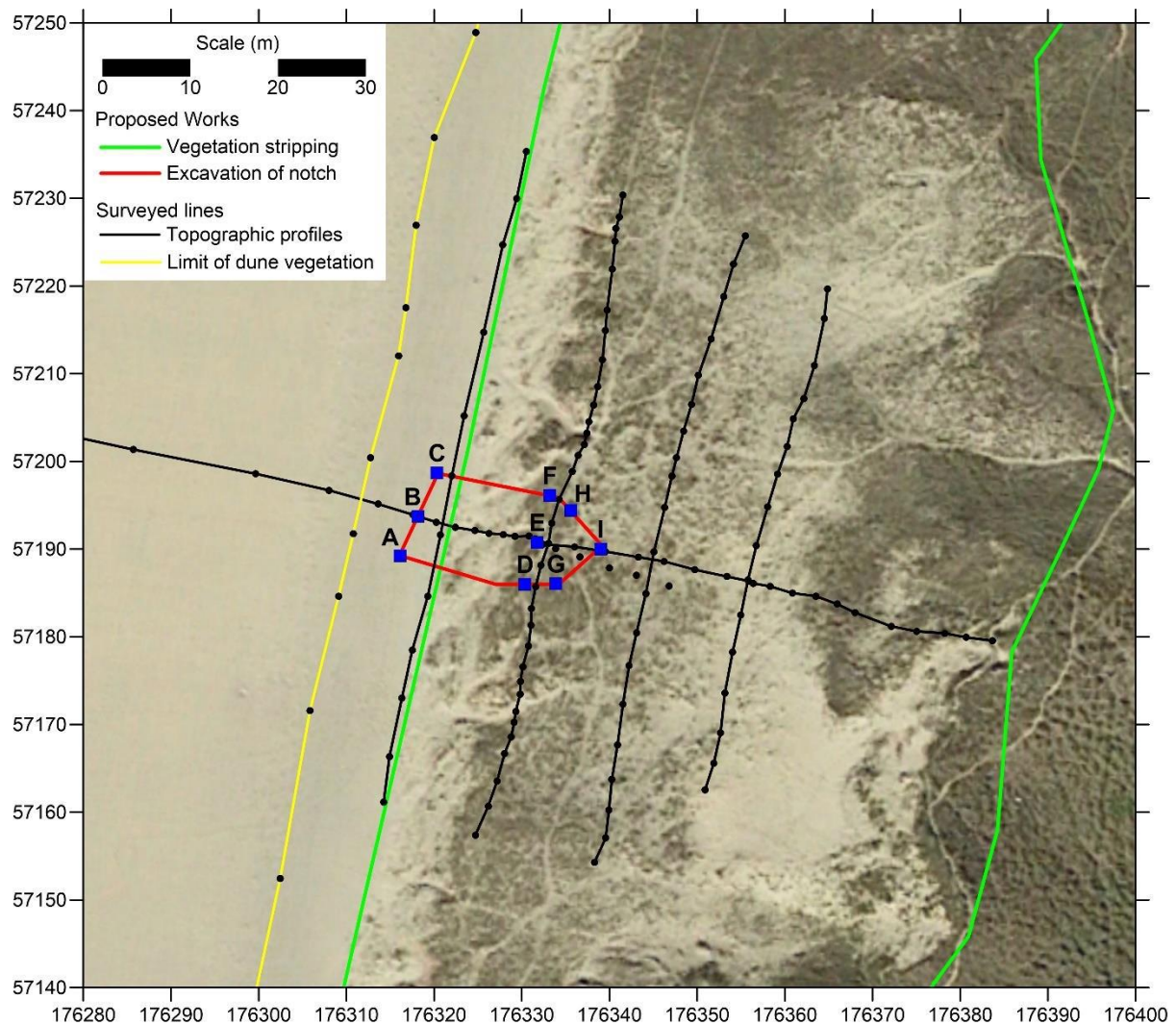


Figure 6. Enlargement of Notch C, showing lines surveyed on 16/09/2022, overlaid on aerial photography flown 22/04/2021, and proposed areas of excavation and vegetation stripping. Location points A to I are shown with blue squares, and listed in Table 4

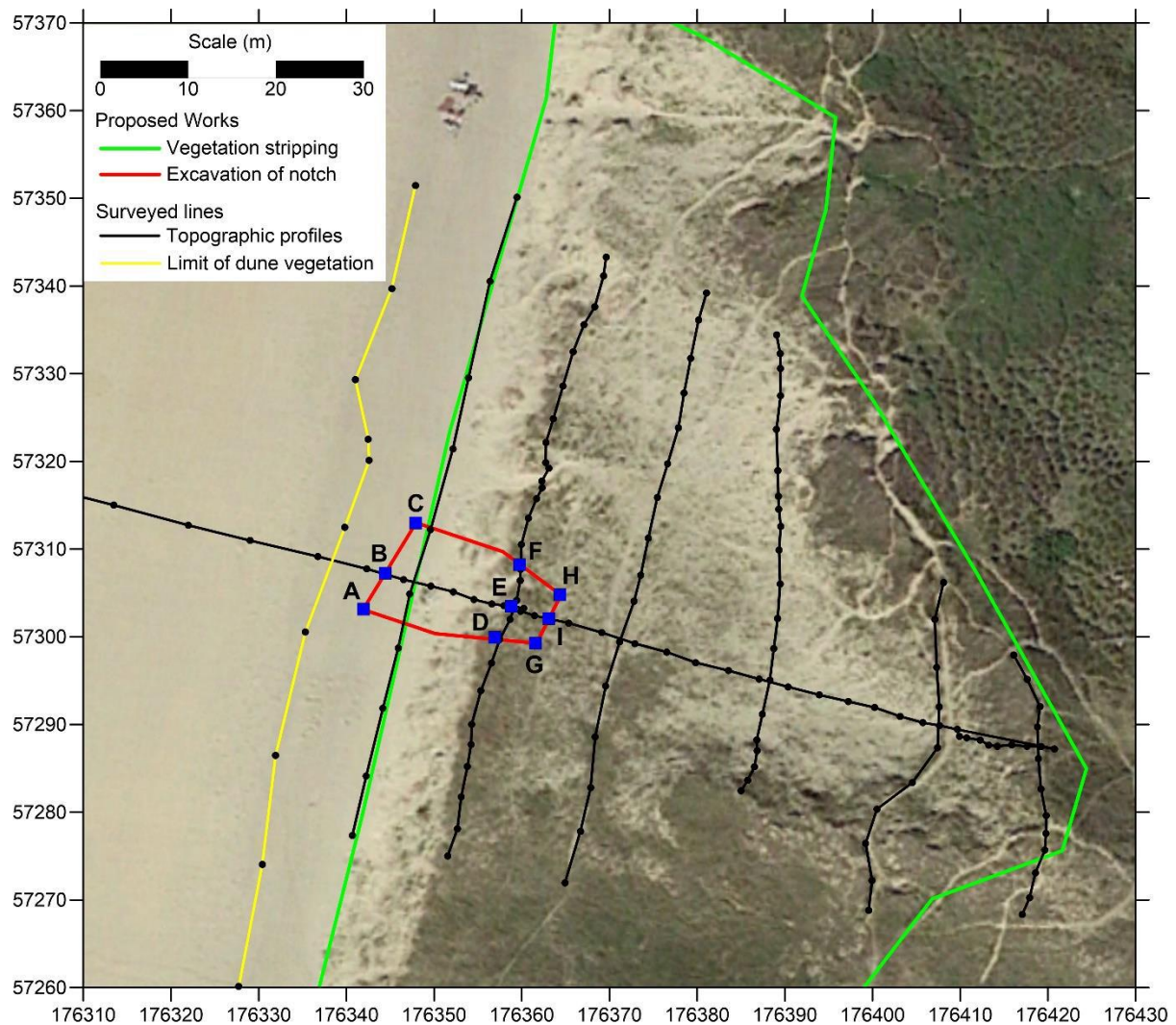


Figure 7. Enlargement of Notch D, showing lines surveyed on 16/09/2022, overlaid on aerial photography flown 22/04/2021, and proposed areas of excavation and vegetation stripping. Location points A to I are shown with blue squares, and listed in Table 4

Bill of Quantities

Item	Firm Fixed Cost
Notch A and associated turf stripping and profiling	
Notch B and associated turf stripping and profiling	
Notch C and associated turf stripping and profiling	
Notch D and associated turf stripping and profiling	
Total Fixed Cost	

35

Additional Item	Cost
Turf stripping @ 8hr day rate machinery, operator and banks man	

