COMPLETE CAPABILITY GUIDE

The Earthwork Calculator

and the tools around it

A plain-English tour of the site-takeoff software running free on soil-depot.com. It turns a drawn or uploaded site into real **cut, fill, haul, and truckload** numbers, measured against real ground, the kind of work firms pay thousands a seat for. This guide walks through everything it does.

FOR	Contractors, builders & owners	LIVE AT	soil-depot.com/earthwork-calculator
SUITE	Four calculators	ISSUED	July 2026

00 · What this is

Professional site-takeoff software, free in your browser.

Most contractors work out dirt by hand, by eye, or by paying a takeoff service. The Soil Depot calculator does the real thing in the browser: you draw or upload a site, and it measures the earthwork against actual ground data, then reports the cut, the fill, the haul, and the number of truckloads. **No sign-up, no software to install, on the phone or the desktop, in English or Spanish.**

This is not a box-and-depth estimator. It reads real elevation, honors engineered survey files, understands the soil under the site, plans the haul, and prints a branded takeoff report. The pages below walk through every capability, one at a time.

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CALCULATORS, ONE ENGINE	ENGINEERING FILE TYPES READ	LANGUAGES, EVERYWHERE

The suite at a glance

Earthwork

FLAGSHIP

CUT & FILL TAKEOFF

Draw or import a site, measure it against real ground, and get cut, fill, haul distance, and truckloads with a 3D model and a PDF report.

Pad & Lot

BUILDER

BUILDING-PAD VOLUMES

Size a pad or a lot, set the depth, and get the fill or export volume and the loads to move it, drawn or typed.

Quick Estimate

FAST

TYPE IT IN PLAIN WORDS

Say the size in plain English and get a material volume and truckloads in one line, no map required.

Full Calculator

MATERIALS

PRODUCT & TONNAGE

Pick a Soil Depot material, set the area and depth, and get cubic yards and tons for the order.

01 · The flagship

Draw a site. Get the dirt.

The Earthwork Calculator runs the same core calculation a professional takeoff uses: it subtracts the proposed grade from the real existing ground, cell by cell, and returns the cut, the fill, and everything that follows from them. The difference is that it runs in a browser, for free, and finishes in seconds.

It pulls real elevation from public USGS LiDAR, reads engineered survey files at full accuracy, understands the soil under the site, plans the haul, draws a 3D model, and prints a report you can hand to a lender or a grading crew. What follows is everything it does, grouped the way a job actually runs.

01 Find the site

Search the address, drop a pin, or drag a survey file straight onto the page. The map flies to the jobsite on satellite imagery.

02 Trace it or import it

Draw the outline by box, corners, or freehand, or import the engineer's surface from a DWG, LandXML, or DXF and skip drawing entirely.

03 The ground loads itself

The moment there is an outline, real existing elevation arrives from USGS LiDAR. Upload your own survey and it measures against that instead.

04 Shape the design

Choose a pond, a level pad, a trench, or a custom grade. Set the depth, the finished elevation, and the slopes, or let it auto-balance cut against fill.

05 Read the takeoff

Cut, fill, net export, truckloads, a mass-haul plan, an interactive 3D model, and a branded PDF to send. Share a link that reopens the whole thing.

01 Defining the site

Address search & live suggestions

Type an address, including rural county roads, and pick from a live dropdown. The map jumps straight to the property.

Use my location

Opens near where the customer already is, using a granted GPS fix or a coarse fallback. It never nags a first-time visitor for permission.

Four ways to draw

Pan the map, drag a box, tap each corner, or trace freehand, with the square footage and acres shown live as you go. A freehand loop is cleaned to tidy corners automatically.

Fully editable outline

Every corner is numbered and draggable, a tap removes one, a new point snaps into the nearest edge, and a center handle moves the whole shape.

Satellite & labels

Draws over high-resolution aerial imagery with a street and boundary overlay so the outline lands exactly on the right ground.

Drag and drop any file

Drop a survey or plan file anywhere on the tool and it routes itself to the right place, reading the file's contents, not just its name.

02 Importing engineering files

`DWG` Civil 3D · `LandXML` topo & grading · `DXF` CAD · `XYZ / CSV` point cloud · `GeoTIFF` drone DEM · `PDF / image` plan sheet

Surface picker & role toggle

When a file holds several surfaces, choose one and declare it the proposed design or the existing ground. It even guesses which from the name.

Coordinate system, sorted out

It works out which State Plane or UTM grid a file uses by where it lands on the map, and lets you override from the full list. It never guesses silently.

Units and datum confirmed

Before a drone survey is used, you confirm feet or meters and how it lines up with public ground, with a live side-by-side comparison.

Trace over a plan sheet

Pin a PDF or photo of a plan to the map, then trace over it. It can even snap to the real contour lines printed in the PDF.

WHY IT MATTERS

The same file the engineer sent, read at full accuracy.

A grading plan already holds the answer. Instead of re-drawing it, the calculator reads the engineer's own triangles from the DWG or LandXML and measures against them directly. Six formats in, US State Plane and UTM grids supported, in survey-foot, meter, or international-foot.

03 The ground it measures against

Every number is only as good as the ground underneath it. This is where the calculator is different from a box-and-depth estimator: it uses real elevation, from whichever source is most accurate for the job, and it is honest about what it does and does not know.

Public USGS LiDAR, free

The instant there is an outline, the real existing surface is pulled from USGS 3DEP LiDAR, about one meter across most of Texas. No upload, no cost.

Your own survey (the two-file unlock)

Upload the engineer's existing-conditions survey and the design is measured against your ground, not remote sensing, for the tightest number the tool can give.

Your drone flight

A drone DEM from Propeller, DroneDeploy, or Pix4D becomes the existing ground wherever it has coverage, on the datum you confirm.

Traced from a plan

Existing contours and spot elevations traced off a plan sheet build a real surface to measure against.

A badge that names the source

The result always states exactly where the ground came from, its resolution, and the detected soil. No guessing what it used.

One click back to LiDAR

Remove an uploaded survey and it reverts cleanly to measuring the whole site against public LiDAR.

THE PART THAT BUILDS TRUST

It never invents dirt.

Where a survey has no data, the calculator leaves that area **out of the number and says so**, right on the result: "covers 87% of the design, the rest is not included." It will not bridge a hole and quietly hand back a bigger, wrong number. A cross-section engine independently re-derives the volumes as a second check. Honest beats impressive, every time.

THE UPGRADE THAT CHANGED THE MATH

Measure the design against your own survey.

This is the one that takes you from a rough estimate to your own measured ground. Upload the existing-conditions survey and the grading plan, say which is which, and the tool differences one against the other the way a takeoff engineer would. A shared link now carries that survey with it, so the number holds no matter who opens it.

04 Shaping the design

Pond or basin
Draw the top edge, set a depth and bank slope, and it digs a flat-bottomed basin ramping to a level rim.

Level pad
A flat pad at the elevation you type, or leave it blank and it solves the grade where cut equals fill for zero haul.

Trench
A linear cut along a centerline with a bottom width, wall slope, and a depth or an invert elevation. Reports length, not area.

Custom grade
Place spot elevations and grade lines to build any finished surface by hand, tying into existing ground at the edges.

Whole site plans
Combine pads, ponds, trenches, and grades on one site, each with its own cut and fill in the breakdown.

Daylight to grade
Slope a pad or trench out until it catches existing ground, at a slope you choose.

Strip and stockpile topsoil
Set a topsoil strip depth and choose to respread it on site or haul it off. The stripped stockpile is counted either way, and the haul reflects it.

Subgrade & pavement sections
Tell it how deep the machines really cut for a slab or paving section, and it deepens the cut and counts the base, fill, and concrete.

05 The earthwork math

CUT · DIG & HAUL OFF FILL · BRING & PLACE

Cut, fill, net & balance
Cubic yards to dig, fill needed, and the net that leaves or arrives, with an auto-balance option for zero haul.

Swell-adjusted haul-off
Turns in-ground cut into loose truckloads after swell, binding on whichever comes first, legal weight or volume.

Cut and fill heatmap
A warm-cut, cool-fill depth map draped over the aerial with a legend, so the plan is readable at a glance.

Depths, areas & hillside berms
Max and average cut depth, disturbed area, and the berm fill a hillside pond needs so it is never understated.

06 Soil intelligence

Automatic soil lookup

The soil under the outline is identified from the USDA survey, with its series, texture, and shrink-swell behavior on a card.

Layer by layer, not one blob

The cut is split through the real horizon stack, topsoil over clay over rock, and each layer is classified on its own.

Real boring logs

Type in geotech borings, one pin per hole with the depth to each layer, and a real log overrides the survey.

Keep it or haul it

Each layer is judged reusable structural fill or poor clay, which decides what stays on site and what has to leave.

07 Haul planning & logistics

A real mass-haul plan

Solves which cut goes to which fill at least cost, and reports the yards moved on site and the average and longest haul.

Free-haul and overhaul

Splits the dirt that moves within the free-haul distance from the overhaul beyond it, with the distance under your control.

Haul to your gate

Off-site export and import are measured to a gate pin you drop at the real entrance, drawn on a haul map.

Trucks, machines & time

Truckloads by tandem, end dump, or belly dump, the on-site machine mix the haul calls for (dozer push, scraper, excavator and trucks) each with its yardage, plus machine-hours, working days, and a time range.

STRAIGHT ABOUT MONEY

It counts the work. Soil Depot quotes the price.

The tool reports every quantity, the truckloads, the tonnage, the yards of fill, and a planning range for the earthmoving equipment's machine time. It does not put a dollar figure on your materials or delivery. Every estimate ends with a one-tap hand-off to Soil Depot for a quote, carrying the numbers with it.

08 What comes out of it

Interactive 3D model

A real WebGL model of the existing and proposed ground, the excavation colored cut and fill, spinning to any angle.

Cross-sections

A scrollable set of stationed sections showing existing against design, cut and fill area by area.

Branded PDF takeoff

A one-page report with the aerial, the heatmap, three 3D views, and the full takeoff, ready to send to a lender or a grading crew.

Spreadsheet export

A clean CSV of every quantity, feature, order, layer, haul, and phase, that opens straight into a spreadsheet.

TWO OUTPUTS WORTH CALLING OUT

It can drive the dozer, and it can travel by link.

Machine-control export. Download the finished grade as a LandXML surface a GPS grading box can build to, on Trimble, Topcon, Leica, Cat, or Komatsu, with a coordinate check and a reminder to have an engineer approve it first.

Shareable link. "Share this estimate" makes a link that reopens the whole design for anyone. It now carries the uploaded survey, the drone data, and the geology with it, so whoever opens it computes against the exact same ground and sees the exact same numbers.

Embed it anywhere

A copy-paste snippet drops the calculator onto any other website as a self-sizing widget.

Order hand-off

A single button carries the finished estimate to the Soil Depot quote page, numbers and all.

09 Built into everything

English and Spanish

Every label, soil card, result, and the PDF report render fully in Spanish on the /es side of the site.

Works on a phone

Full touch drawing, a two-finger-pan hint so the map never traps the page, and the native share sheet.

Phased jobs

Split the site into construction phases and see what each one cuts, fills, and trucks, with nothing quietly dropped.

Honest by default

Every result is marked a planning estimate from public data, coverage is disclosed, and no price is ever invented.

Private by design

Address, elevation, and soil lookups run through the site's own server, so a visitor's location is never handed to a third party.

A one-time acknowledgment

The first time an estimate leaves the tool, a short "planning estimate, not a survey" note with a terms link is accepted once.

CY	3D	GPS
CUT · FILL · NET · HAUL	MODEL · SECTIONS · HEATMAP	MACHINE-CONTROL OUT

WHERE TO FIND IT

The whole suite is live right now.

soil-depot.com/**earthwork-calculator**

soil-depot.com/**pad-calculator**

soil-depot.com/**soil-calculator** (Quick & Full)

02 · The rest of the suite

Three more calculators, one engine.

The earthwork tool digs. These three deliver. They share the same map, the same 3D look, and the same honest math, and each one does something the others do not.

Pad & Lot Builder

LAYERED BUILD-UP

Sizes the material to **build a footprint up**, a pad, a parking lot, a gravel drive, a road, layer by layer, and returns the cubic yards, tons, and truckloads to bring in.

Stacked sections. Build the pad as real lifts, a material (fill, select fill, crushed base, sand, or topsoil) and a thickness per layer, or drop in a preset for a pad, lot, gravel drive, road, or a fill-and-level.

Layer-cake 3D. Its own turntable shows one colored band per material at true thickness, extruded from the outline you drew.

Smart truckloads. The same material across two layers shares delivery loads, so the truck count is real, not doubled.

Share & embed. A link reopens the exact footprint and stack, and a snippet embeds the builder on any site.

ONLY HERE: CRUSHED BASE IN THE CATALOG · PER-LAYER LIFTS · DRAW OR TYPE THE FOOTPRINT · ITS OWN PDF WITH A SATELLITE IMAGE

Quick Estimate

TYPE IT IN PLAIN WORDS

The fastest "how much do I need," with **no map required**. A length and width or an acreage, a depth, a material, and the delivered yards, tons, and truckloads appear as you type.

Plain-English input. Type "300 by 80, 8 inches of select fill" and it fills the fields and computes.

Delivered, not just in place. Loose yards to order, tons as a range, and truckloads by volume or weight.

One tap to a quote. Bid sheet, email, copy link, or straight to Soil Depot with the numbers attached.

Optional map. Prefer to draw it? A satellite shape is one tap away.

Full Calculator

EVERY SHAPE & MATERIAL CONTROL

The complete materials calculator: **six shapes, project presets, and multiple areas at once**, for anything from a circular pond to a whole multi-zone site.

Six shapes. Map, rectangle, circle, triangle, acreage, or a straight square-footage.

Fine control. Eight project presets, from building pad to utility trench to final grade, plus waste, compaction, and truck type when you want them.

Voice and text. Speak or type the job in plain words and it fills itself in.

Add up many zones. Total several areas into one order with a grand total.

ONE ENGINE UNDERNEATH

Four tools, built to feel like one.

All four run on the same in-house map (satellite drawing, no third-party key, a visitor's location kept private), the same interactive 3D look, the same one-time acknowledgment, and full English and Spanish. And they share one rule about money: they count the work and hand the price to Soil Depot. Learn one, and the rest feel familiar.

The earthwork tool, at a glance

DEFINE THE SITE

- Address search & suggest
- Use my location
- Box, corners, freehand draw
- Editable numbered points
- Drag & drop any file
- Satellite & labels

IMPORT FILES

- DWG, LandXML, DXF
- XYZ / CSV point clouds
- GeoTIFF drone DEM
- Trace over a PDF plan
- Surface picker & role
- CRS detect & override
- Units & datum confirm

THE GROUND

- USGS LiDAR, free
- Your uploaded survey
- Your drone flight
- Traced from a plan
- Coverage disclosed
- Source badge

THE DESIGN

- Pond, pad, trench, grade
- Whole site plans
- Daylight to grade
- Strip & stockpile topsoil
- Subgrade & sections

THE MATH

- Cut, fill, net, balance
- Swell-adjusted haul-off
- Cut / fill heatmap
- Live area & acreage

SOIL & HAUL

- USDA soil lookup
- Strata & boring logs
- Fill suitability
- Mass-haul plan
- Free-haul & gate
- Trucks, machines & time

OUTPUTS

- Interactive 3D model
- Cross-sections
- Branded PDF takeoff
- CSV export
- Machine-control (GPS)
- Share link & embed

BUILT IN

- English & Spanish
- Phasing · mobile · private

03 · The point of it

Draw the job. Get the dirt. Then let Soil Depot move it.

Draw a pond on your phone and walk away with the cut, the haul, and the truckloads, for free, in minutes. The calculator does the hard part, then hands the job to Soil Depot with every number attached, ready to quote.

Everything in this guide is live right now at soil-depot.com. It reads real ground, honors real survey files, understands the soil, plans the haul, drives GPS equipment, and stays honest about what it knows. Open it, draw a job, and see.